The Virtual Social Cure:

Exploring the impact of online group membership on health and well-being

Elizabeth Frances Mair

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Copyright Statement

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Abstract

The Social Identity Approach to Health has established that identification with an offline group can have a positive impact on health, acting as a 'Social Cure' (Haslam et al., 2018). However, there is limited research into whether social identities can be developed and maintained online. This research aims to address this gap, exploring whether online group membership may impact mental health, well-being and loneliness for young adults.

A mixed methods approach over three studies was carried out. Study 1 involved two cross-sectional online surveys of young adults, one prior to the COVID-19 pandemic (N=169) and one during the COVID-19 pandemic (N=179), to quantitatively explore well-being and loneliness of young adults and their identification with online groups. Study 2 was designed to be a longitudinal online survey of young adults who had experienced the transition to university following the COVID-19 pandemic (N=139), quantitatively exploring multiple group membership of online and offline groups, and well-being and loneliness. Study 3 used online Social Identity Mapping and semi-structured interviews with young adults who had experienced the transition to university following the COVID-19 pandemic (N=30) to explore the social groups participants belonged to, the impact of COVID-19, and the experience of loneliness for young adults.

The quantitative results suggested identification with an online group may support well-being through greater social support received and lower loneliness. Qualitatively, young adults described how times of significant life change encouraged a period of evaluation of social groups, enacting changes to identity networks to ensure needs were being met, with online group memberships facilitating this process. The findings suggest initial support of a virtual 'Social Cure', as online groups were used

to develop and maintain identities, and to address social and psychological needs. Although, online groups also highlighted disconnection, and in-person interaction was preferred when assessing new identity gain.

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Chapter 1. Thesis Introduction

Overview

Loneliness has been defined as the distressing discrepancy between the level of preferred social involvement and actual social involvement (Holt-Lunstad et al., 2015; Weiss, 1975). Loneliness is of growing concern within literature and policy (GOV.UK, 2018; Haslam et al., 2024), due to the impact on health (Park et al., 2020), well-being (Achterbergh et al., 2020), and mortality (Holt-Lunstad et al., 2010).

In the United Kingdom (UK), young adults are experiencing loneliness to a greater extent than other age groups, especially those aged 18-21 (Hammond, 2018; Office of National Statistics; ONS, 2018). Within this thesis, the experience of loneliness for young adults aged 18-24 will be explored. It was felt this was an appropriate age group due to the prevalence of loneliness in this age group (ONS, 2018). Additionally, it has been suggested that loneliness should be explored within emerging adulthood as this period consists of identity exploration, social network changes, and transitions (Arnett & Mitra, 2020; Hawkins et al., 2024; Kirwan et al., 2024).

Social connectedness online is increasingly common, especially for young adults (Ofcom, 2018), with a further increase in social internet use following the outbreak of COVID-19 (Binte Mohammad Adib & Sabharwal, 2024). Social internet use has been defined as synchronous or asynchronous online methods of communication, across a variety of mediums (Nowland et al., 2018). However, it is unclear as to whether social internet use may support or worsen loneliness for young adults, with it argued that social internet use may be used to develop and maintain connections, or used to socially withdraw (Nowland et al., 2018).

Within the literature there have been various ways to refer to, and distinguish between, in-person connections and online ones. It is also important to acknowledge in-person and online connections do not exist within distinct categories. It has been argued that such distinctions are becoming redundant, as the online world coexists with the offline world, and the online should not be considered less real given it is an extension of the offline, through shared norms and behaviours (Munk & Kennedy, 2024). Furthermore, within the context of the COVID-19 pandemic, such distinctions became increasingly difficult, as many individuals relied on the online world to maintain connections with those they would usually interact with in-person, as a result of lockdowns, shielding, and distancing. Keeping the effect of COVID-19 on the ability to interact in-person in mind, for the purposes of this thesis, an 'online' group will refer to three or more individuals with a shared identity, communicating mainly online, through mediums such as instant messaging, forums or video chats (Howard & Magee, 2013). An 'offline' group, will refer to three or more individuals with a shared identity, communicating mainly in-person, with the awareness of the impact COVID-19 may have had on the ability to interact with groups offline. While online and offline groups exist on a continuum, it is important to consider the role of the online within social identity development and maintenance, as the Social Identity Approach to Health has previously explored online and offline groups as a dichotomy rather than a continuum (Draper & Dingle, 2021). In doing this, this negates the role of online groups being potentially supplementary to, and compatible with, offline social identities. For example, the importance of online groups facilitating the maintenance of existing social identities has previously been raised by participants (Ng et al., 2018); however, this has not been directly explored.

This thesis aimed to explore how the mental health, well-being and loneliness of young adults may be associated with identification with online groups. Social identities are defined as the sense of self which is formed from the groups one belongs to (Jetten et al., 2012). These may come from an actual group (e.g. a sports team attended on a regular basis) or may develop from a concept (e.g. identifying as a feminist). It would be pertinent to explore whether such identities can act as a virtual 'Social Cure'.

Problem Statement

There is a growing body of research within the Social Identity Approach to Health which has established that identification with a group can act as a 'Social Cure' when group membership affords a positive sense of social identity, as it subsequently has a positive impact on health (Haslam et al., 2018). Previous research has explored social identities that exist within offline groups; however, less research has explored whether social identities can be developed and maintained online, and whether this is supplementary to, and compatible with, offline social identities. Therefore, the current research aims to address this gap in the literature. Additionally, the experience and prevalence of loneliness in young adults and the association this may have with social internet use requires further investigation.

Significance of the Study

The current research investigated the impact of online group membership on the health and well-being of young people living in the UK. It also aimed to shed light on the experience of loneliness for young people living in the UK (Kirwan et al., 2024).

The COVID-19 pandemic began during the thesis, and so given the resulting increase in social internet use and impact on loneliness, it was pertinent to adapt the thesis to explore the impact of COVID-19 on online group membership and the loneliness experienced by young adults during this time.

The findings of this research would be of relevance to health professionals, in higher education, and for academics, as insights into how online groups are used and the experience of loneliness for young adults, within periods of significant life change, will be gained.

Methodology

The Social Identity Approach to Health has previously established relationships between identification and health, well-being and loneliness in offline group membership (McNamara et al., 2021; Sani et al. 2012). The first two studies of this thesis aimed to explore whether these relationships could be replicated in online group membership, both cross-sectionally and longitudinally. Therefore, it was appropriate to use an explanatory sequential design to integrate the findings from the first two studies with those of the final mixed-methods study. The final study consisted of semi-structured interviews and online Social Identity Mapping, to capture greater nuance through qualitative data. Therefore, this combination of methods can counter the limitations of each singular method, to provide a greater understanding of social identities online (Creswell & Plano Clark, 2018).

Structure of the thesis

This thesis comprises of the following chapters:

Chapter 2. A review of the Loneliness Literature: This chapter will provide an overview of the loneliness literature, with a focus on young adults, and social internet use.

Chapter 3. A review of the Social Identity Approach: This chapter will provide an overview of the Social Identity Approach, highlighting the limited but growing research into social identities online.

Chapter 4. Methodology: This chapter outlines the rationale and use of an explanatory sequential design within the thesis.

Chapter 5. Study 1: This chapter consists of the first quantitative study which examined the impact of online group membership on well-being and loneliness, through cross-sectional surveys prior to and during the COVID-19 pandemic.

Chapter 6. Study 2: This chapter consists of the second quantitative study which explored multiple online and offline group membership during the transition to university, and the impact on health, well-being and loneliness, through a longitudinal survey.

Chapter 7. Study 3: This chapter consists of the final study, a mixed-methods study exploring the integration of online and offline social groups for young adults following the transition to university, using semi-structured interview and online Social Identity Mapping.

Chapter 8. General Discussion: This chapter integrates the quantitative and qualitative findings of the thesis, highlights the limitations of the thesis, discusses the contributions of the thesis, and outlines the theoretical and practical considerations.

Chapter 2. A review of the Loneliness Literature

Chapter Overview

This thesis aims to examine online social identities and the impact on health, well-being and loneliness, exploring whether online identification can act as a virtual 'Social Cure' as has previously been demonstrated within offline groups in the Social Identity Approach to Health literature (SIAH; Haslam et al., 2018). An emerging area of importance within SIAH research is the influence of identification on loneliness, with this impacting health and well-being (Haslam et al., 2024). The serious detrimental impact of loneliness on mortality (Holt-Lunstad et al., 2010), health (Park et al., 2020), and well-being (Achterbergh et al., 2020), has recently been recognised both within the literature (Haslam et al., 2024) and at policy level (GOV.UK, 2018; GOV.UK, 2022). A misconception surrounding loneliness is that it is mainly experienced by older adults; however, young adults living in the UK currently experience loneliness to a greater degree than other age groups (Hammond, 2018; Department for Digital, Culture, Media & Sport, 2019). Despite this, there is a lack of understanding how young adults experience loneliness and the extent to which online connectedness may alleviate it. The thesis will focus on the perceived loneliness experienced by young adults living in the UK, and as such, will begin with a review of previous research in the area, examining the impact of loneliness, the causes of loneliness and how online social connectedness may relate to loneliness. This chapter aims to provide an overview of the loneliness literature to provide context to the main aim of this thesis, to explore the role of social identities in online groups, and the impact this has on mental health, well-being and the experience of loneliness for young adults.

A definition of loneliness

Loneliness has been defined as the discrepancy between an individual's preferred social involvement and their perception that their current social relationships are inadequate (Cacioppo et al., 2014; Peplau & Perlman, 1979; Weiss, 1975). For instance, an individual may not experience loneliness despite having few social connections, as they may not perceive a discrepancy between their social involvement and their perceptions of these social relationships. Conversely, an individual who has a greater number of social connections but who experiences a discrepancy between this and their perceptions of the quality of their social relationships may experience loneliness.

Loneliness differs from social isolation, as social isolation is a lack of contact with others, such as living alone or having few social ties (Holt-Lunstad et al., 2015). While objective social isolation may contribute to the experience of loneliness, loneliness is the subjective perception of social isolation and the two constructs are independent (Cacioppo et al., 2014; Holt-Lunstad et al., 2015; van Tilberg & de Jong Gieveld, 2023). This thesis will focus on the experience of loneliness, as this could capture both the objective and subjective nature of the experience, with the aim of exploring how young adults experience loneliness.

There have been three main types of loneliness identified within the literature, social, emotional and existential loneliness (van Tilburg, 2021; Weiss, 1975). Social and emotional loneliness have been the most represented concepts of loneliness within the literature (McKenna-Plumley et al., 2023). Social loneliness is considered to be a lack of social connection or integration, which can be alleviated by access to a supportive social network such as colleagues within the workplace (Weiss, 1975). Emotional loneliness is thought to be more complex, relating to attachment and an

absence of meaningful relationships, experienced through bereavement for example and alleviated through developing a new sense of attachment (Weiss, 1975). Existential loneliness refers to feeling as though there is a distance between you and others, emptiness and fears relating to mortality, and it currently lacks interventions to help reduce the experience (McKenna-Plumley et al., 2023; van Tilburg, 2021).

In examining the typology of loneliness proposed by Weiss (1975), DiTommaso and Spinner (1997) provided support for the distinction between social and emotional loneliness, with each relating to different social provisions. Social provisions are the idea that different social relationships can provide for different social needs, including providing a sense of attachment, guidance, reassurance, social integration, reliable alliance, and nurturance (DiTommaso & Spinner, 1997; Weiss, 1974). These six provisions are sought out in various relationships to address these needs, and loneliness may stem from lacking such provisions (DiTommaso & Spinner, 1997; Weiss, 1974). The perception of being more integrated within a social network was associated with lower levels of social loneliness, and higher levels of emotional loneliness was associated with lower attachment (DiTommaso & Spinner, 1997).

Theories of loneliness

Building on the definitions of loneliness are the theoretical explanations of loneliness, which are important to inform the development of loneliness interventions (Cacioppo & Cacioppo, 2018). Weiss (1975) outlined that loneliness was an under-researched phenomenon due to the lack of theory to capture and encompass the experience, and the development of a theory of loneliness may have been avoided due to the fear of the experience. This lack of theory and understanding was furthered by the perception that loneliness is difficult to comprehend from memories of the experience, as distance from the experience changed the perceptions of loneliness and

perceptions of the previous self that was experiencing it (Weiss, 1975). Since then, interest in the topic has expanded, with the development of theories, models, and approaches to understanding loneliness.

One such approach is the social needs approach to loneliness (Weiss, 1974). As highlighted above, Weiss (1974) proposed the six social provisions of loneliness, which have been explored and supported within the literature (Kraus et al., 1993; Russell et al., 1984). This approach suggests missing certain needs within relationships may lead to loneliness, and was developed from attachment theory (Bowlby, 1969). Alternatively, Peplau and Perlman (1982) proposed the cognitive discrepancy approach, suggesting that loneliness may be a result of irrational thoughts and attitudes surrounding the development of relationships, such as low self-esteem, expectations of rejection, and high expectations for social relationships.

Building on this, the socio-cognitive model of loneliness suggests that an increased perception of social threat and a lack of response to social reward may exacerbate the experience of loneliness, creating a cyclical situation that reinforces loneliness which is difficult to improve from (Cacioppo & Hawkley, 2009; van Roekel et al., 2016). Although, in a sample of young adults, it was found that while social threat was perceived as more negative by lonely young adults, social reward was considered to be more positive by lonely young adults as compared to young adults reporting low levels of loneliness, suggesting support for the notion that loneliness may be a motivator for changes in social networks (van Roekel et al., 2016).

This would support the Evolutionary Theory of Loneliness (ETL; Cacioppo & Cacioppo, 2018). The ETL posits that there is an evolutionary desire to create social connections, which can be protective for survival (Cacioppo & Cacioppo, 2018). If

social connections are perceived to be lacking, the experience of loneliness acts as a warning for future health concerns and as a motivator for change in the social network to ensure survival (Cacioppo & Cacioppo, 2018; Cacioppo et al., 2014). Further, if not rectified, this may lead to a sense of vigilance to social threat, risking further loneliness through avoiding others, linked to the evolutionary sense of protecting oneself from betrayal to survive (Cacioppo & Cacioppo, 2018).

The above sections have provided an overview of how loneliness has been defined and understood at a conceptual level, with the following sections outlining how this has informed the measurement of loneliness and the application of this to exploring the predictors and impact of loneliness, with the aim of narrowing down the focus of what this thesis aims to investigate.

The measurement of loneliness

There have been arguments that, while distinct in some ways, each concept of loneliness may have some overlap with the other and requires further definition and so the measurement of loneliness is a growing topic of debate (van Tilburg, 2021). Loneliness is commonly measured using single-item measure or short questionnaires, each of which usually do not denote differences between the three main types of loneliness (van Tilburg, 2021). The use of a single-item measure fails to capture what type of loneliness is experienced, and when and why loneliness is experienced (van Tilburg, 2021). Through gaining a better understanding of loneliness, targeted interventions can be developed (Eager et al., 2024). Adding to this issue is that loneliness and social isolation are terms that have been used interchangeably within research, despite measuring different concepts (Gardiner et al., 2018; Kirwan et al., 2024; Valtora et al., 2016; van Tilberg & de Jong Gieveld, 2023; Wang et al., 2017). These issues highlight the difficulties in measuring loneliness, and when considering

the development of measurements, it has been raised that measures should be created with the consultation of lonely people, to capture the complexity of loneliness through the unmet social needs and the role of society in this experience (Malli et al., 2023).

Recently, there has been focus on capturing the extent to which loneliness may be experienced as chronic or transient, as there is a need to understand the point at which loneliness becomes a problem and the impact of each type on health (van Roekel et al., 2016). Transient (or situational) loneliness is experienced in the short-term, and is associated with change, such as moving or starting university (Malli et al., 2023). Chronic loneliness is the prolonged, intense experience of loneliness, usually defined as having been experienced for over two years (Malli et al., 2023). Though there is caution in using the term chronic, as it has been argued that persistent would be a more appropriate term as it is less pathologizing of loneliness (Victor et al., 2018). Again, there has been limited measurement of these two types of loneliness when assessing the effectiveness of interventions (Eccles & Qualter, 2021). The impact of experiencing these two different types of loneliness is important to consider, and it has been suggested that while each can be detrimental to health, chronic (or persistent) loneliness was associated with worsening health over time and a slightly higher risk of mortality (Martín-María et al., 2020; Zhong et al., 2016).

These factors surrounding the measurement of loneliness highlight the need to capture the experience of loneliness, alongside measuring its prevalence, which this thesis aims to contribute to. The different aspects of loneliness have been considered difficult to quantitatively comprehend (Malli et al., 2023) and there have been calls recently to qualitatively explore the experience of loneliness in a broader sense within emerging adulthood (Kirwan et al., 2024; Nielsen et al., 2024), as opposed to exploring

loneliness as a result of a health condition for example (Eccles & Qualter, 2021), which this thesis aims to address.

Loneliness and physical and mental health

The need for a clearer understanding of the experience of loneliness is important due to its health implications. While research has explored the effects of lifestyle and environmental factors on mortality, it is also important to consider the effects of social factors (Holt-Lunstad et al., 2015). Loneliness has been shown to have a demonstrable effect on health, with loneliness having a comparable mortality risk to that of smoking or obesity (Holt-Lunstad et al., 2010). When exploring the relationship between loneliness and mortality, Holt-Lunstad et al. (2015) found in their meta-analytic review that loneliness has been associated with several negative health outcomes, including raised blood pressure, lowered immunity, and depression. It has also been associated with greater cognitive decline (Park et al., 2020), poor sleep quality (Wakefield et al., 2020), and increased presentation at health services (Christiansen et al., 2023; Cruwys et al., 2018).

As demonstrated above, there is growing understanding of the detrimental impact loneliness may have on health, although there is a need for further understanding of the association between loneliness and mental health (Birken et al., 2023). This is especially the case for young adults, who are at an increased risk of developing a mental health condition (Pitman et al., 2018). Therefore, a central aim of this thesis is to explore the associations between loneliness, health and well-being for young adults. When considering the relationship between loneliness and mental health, previous research has suggested that loneliness may increase the risk of developing depression (Lee et al., 2020; Mann et al., 2022), that the relationship between loneliness and depression may be bi-directional (Achterbergh et al., 2020)

and has demonstrated differences in the reported severity of loneliness when compared across mental health conditions (Alasmawi et al., 2020).

Despite these demonstrable impacts of loneliness, public perceptions of loneliness have shown a lack of understanding regarding the importance of addressing loneliness as a health concern (S.A. Haslam et al., 2018). Furthermore, the seriousness of loneliness has been perceived to be trivialised, with this linked to blame being placed on those who experience loneliness (Malli et al., 2023). This is detrimental to seeking support due to the fear of blame and to intervention development due to lack of understanding and over-simplifying the issue (Malli et al., 2023).

However, the impact loneliness has on the individual, the health service, and the economy has been recognised by UK Government. In 2018, the first strategy for loneliness in England was published, a new fund of £20 million for charities and community groups to help those experiencing loneliness and social isolation was released, and the appointment of a cross-government loneliness team highlighted the importance placed within policy of addressing loneliness (GOV.UK, 2018; GOV.UK, 2022). It has been raised that while the monetary savings of reducing loneliness in older adults in the UK has been estimated, there is a need to understand how much could be saved if interventions were to address loneliness in other age groups (Mann et al., 2022). This would be appropriate as the prevalence of loneliness in the UK has been depicted as a nonlinear U-shaped distribution of high loneliness for those over the age of 65 and under the age of 25 (Victor & Yang, 2012). While much focus within the loneliness literature has been directed at older adults, there is an emerging body of research into the experience of loneliness for young adults (Kirwan et al., 2024).

Loneliness and young adults

As demonstrated in the previous sections above, loneliness is of increasing concern and interest within literature and society (GOV.UK, 2018; GOV.UK, 2022; Kirwan et al., 2024), due to the impact on health (Christiansen et al., 2021; Park et al., 2020; Perez et al., 2022), well-being (Achterbergh et al., 2020; Beutel et al., 2017; Pitman et al., 2018), and mortality (Holt-Lunstad et al., 2010; Holt-Lunstad et al., 2015). This section will highlight the need to explore loneliness within the context of young adults, demonstrating the prevalence of loneliness in young adults living in the UK (Department for Digital, Culture, Media & Sport, 2019; ONS, 2018) and the potential explanations as to why young adults currently experience high levels of reported loneliness (Diehl et al., 2018), to outline the rationale for young adults being the focus of this thesis.

In the UK, 9.8% of 16-24 year olds reported being always or often lonely, with this being more prevalent for those aged between 18 and 21 (ONS, 2018). Furthermore, those aged 16-24 were more likely than other age groups to report feeling lonely always or often (Hammond, 2018; Department for Digital, Culture, Media & Sport, 2019), with this decreasing with age (Barretto et al., 2021). This may be associated with needing to be viewed as socially connected alongside worsening mental health during young adulthood (Achterbergh et al., 2020; Pitman et al., 2018). Loneliness in young adults has been associated with an increased risk of disability and lower income (Von Soest et al., 2020) and in the UK, those aged 18 who reported experiencing loneliness have been found to be more likely to have mental health issues, use negative coping strategies for stress, and to be out of work (Mann et al., 2022; Matthews et al., 2019). Those working felt unseen and lacked a sense of belonging, which was linked to how work was experienced, for example a lack of

control over responsibilities or a lack of opportunities to socialise (Wright & Silard, 2022). Further, loneliness predicted lower performance ratings, increased sick leave, and being perceived to be less approachable (Wright & Silard, 2022). This demonstrates the wide-ranging impact of loneliness, as it can be detrimental to health and well-being, and the employment and earnings of young adults (Von Soest et al., 2020).

Predictors of loneliness across age groups have included being unmarried, living alone, low income and poor health, with it argued that it is not the influence of age itself but factors surrounding experiences and resources within an age group that influence loneliness (Hawkley et al., 2022). Focusing on young adults, predictors of loneliness have been attributed to four main areas: sociodemographic, relationships, personality, and transitions (Von Soest et al., 2020). Regarding sociodemographic predictors of loneliness, lower levels of parental education and parents receiving benefits were predictors. The findings surrounding gender have been mixed, with this seemingly dependent on whether loneliness was measured directly or indirectly, or by whether the measure reflects social or emotional loneliness (Von Soest et al., 2020; Weiss, 1975). Young adult men were more likely to report social loneliness when measured indirectly, whereas young adult women reported more emotional loneliness when measured directly (Von Soest et al., 2020). Social loneliness decreased over time in this age group, whereas emotional loneliness increased over time (Von Soest et al., 2020). In terms of relationships, relationship quality and access to social support from primary care givers, siblings, and peers are important, with low levels of parental care associated with increased loneliness and a close friend associated with decreased loneliness, whereas sibling relationships had a greater effect in adulthood (Von Soest et al., 2020). Both communion and agency were associated with lower levels of

loneliness in relation to personality, suggesting openness to social situations facilitated lower loneliness (Von Soest et al., 2020). Finally, transitions impact social networks which in turn impact loneliness, with those leaving home at 17 and those who had not lived with a partner reporting higher loneliness, suggesting if the transition deviated from age-normative expectations, this worsened loneliness (Von Soest et al., 2020). Young adults have raised similar reasons for experiencing loneliness in qualitative research, including transitions, parental attachment, shyness, experiencing bullying, poor health, and inefficient coping strategies (Farghassemi & Joffe, 2022; Hemberg et al., 2022; Korzhina et al., 2022; Sundqvist & Hemberg, 2021).

Expanding on this, there has been recent focus on qualitative investigations into young adults' experience of loneliness (Kirwan et al., 2024). While limited studies are available, they suggest loneliness is conceptualised differently by young adults compared to older adults (Hemberg et al., 2022; Verity et al., 2021). Older adults' loneliness has been associated with bereavement and declining health (Verity et al., 2021), whereas young adults described loneliness to be normal and unavoidable during emerging adulthood, despite societal expectations of this being a social period, with loneliness sometimes providing an opportunity for growth following the negative experience through reflection and contentment (Farghassemi & Joffe, 2021; Kirwan et al., 2023). Loneliness was sometimes not recognised during childhood, with this realisation coming in young adulthood through reflection on the exclusion and rejection felt both in the past and present (Nielsen et al., 2024). This in turn was linked to worsening self-esteem and mental health, which then compounded feelings of loneliness, demonstrating the potential cyclical nature of loneliness (Nielsen et al., 2024). Being alone while lonely created the opportunity to overthink, eliciting feelings of sadness, fear, and emptiness (Farghassemi & Joffe, 2021).

Regarding the coping strategies used by young adults to attempt to alleviate loneliness, compulsive social media use (Matthews et al., 2019), and drugs and alcohol were raised as unhealthy strategies (Farghassemi & Joffe, 2021), with distractions such as creative activities considered to be helpful but temporary (Nielsen et al., 2024). Recognising the need to connect with new or existing groups, both online and in-person, offered social support and connection, with online connections being convenient (Farghassemi & Joffe, 2021; Nielsen et al., 2024), supporting the application of the SIAH (Haslam et al., 2018) within this thesis, which will be discussed in the next chapter. However, the desire to connect with others could be halted by feelings of fear of rejection, highlighting how loneliness may become chronic, reinforcing, and contribute to poor mental health (Nielsen et al., 2024).

Thus, it is important to consider the prevalence and implications of loneliness for young adults, as there has been limited but growing research into loneliness during young adulthood (Beutel et al., 2017; Mann et al., 2022). This may be a result of the misconception that it is primarily experienced by the elderly and subsequently researched from the perspective of older people (Matthews et al., 2019). This misconception may encourage the stigma associated with experiencing loneliness, as 42% of young adults reported a sense of embarrassment to admitting loneliness (Mental Health Foundation, 2010). The consequence of this is that it can compound the experience of loneliness and reduce support seeking (Barretto et al., 2022), making loneliness harder to address (Kerr & Stanley, 2021). Stigma is used to enforce social norms through shame and exclusion, and in the context of loneliness, there is the perception that those who are lonely are unlikeable and have poor social skills leading to concealment of loneliness (Barretto et al., 2022; Kerr & Stanley, 2021). Recently there have been contradictory findings regarding gender differences in the levels of

loneliness reported, with males unexpectedly found to be more likely to report loneliness than females, particularly young men from an individualistic society (Barretto et al., 2021). This may be due to the stigma surrounding loneliness creating a reluctance to report it previously, the use of anonymous survey to gain a clearer picture, and that as loneliness is prevalent amongst young adults this may lead to a sense of normalisation (Barretto et al., 2021; Barretto et al., 2022), potentially more so following the COVID-19 pandemic (McKinlay et al., 2022). Furthermore, young adults have been reported to be the age group most likely to seek support for loneliness (Mental Health Foundation, 2010), which raises the importance of gaining a better understanding of the loneliness experienced by young adults, as effective interventions may be welcomed and utilised by this age group.

The effectiveness of interventions for reducing the loneliness experienced by young adults can be dependent on the type of intervention, with interventions targeting social and emotional skill development more effective in single-group designs, and hobby focused interventions more effective in randomised control trial designs, with there being no significant difference between interventions delivered in-person or through technology (Eccles & Qualter, 2021). This was an interesting finding, as previous research has cautioned the use of technology in loneliness interventions for older adults (Victor, 2018); however, it may be that for younger generations technology may be perceived as normal and effective (Eccles & Qualter, 2021). This was echoed by young adults experiencing loneliness, as technology could improve accessibility and comfort levels, and was considered easy and convenient, although there was concern that technology-based interventions may not compare to in-person interventions for loneliness due to the social nature of the issue (Eager et al., 2024). While technology is perceived to enable keeping in touch with others, young people

are more likely to report feeling as though they spend too much time communicating with others online that they would prefer to see in person (Hughes et al., 2024; Mental Health Foundation, 2010). It was felt interventions should be appropriate for the target group, need to be engaging, encompass a shared experience or goal, be flexible for the individual and be clear about involvement to target certain groups (Eager et al., 2024). This highlights the potential impact of the findings of this thesis, as a central aim is the exploration of whether online group membership may be beneficial for health, well-being and loneliness for young adults.

It is important to explore the meaning of loneliness and how it is experienced in emerging adulthood to gain subjective insight as to inform the development of interventions (Hemberg et al., 2022; Kirwan et al., 2024). As such, it has been raised that loneliness should be explored within the context of the life stage (Wright & Silard, 2022), with emerging adulthood considered to be a period of identity exploration, instability, focusing on the self, increasing independence, changes to their social networks, and several transitions (Arnett & Mitra, 2020; Hawkins et al., 2024; Hemberg et al., 2022; Kirwan et al., 2024). While this section has demonstrated the need to explore the loneliness experienced by young adults and some of the potential reasons for the greater likelihood of experiencing loneliness, the role of transitions in young adulthood for loneliness will now be explored further.

Loneliness and transitions

Periods of transition are a key driver of loneliness in young adults (Korzhina et al., 2022), with emerging adulthood considered to be a distinct life stage which includes a number of transitions, such as moving away from home, entering employment, or starting university (Kirwan et al., 2024). Transitions have been considered by young adults to be impactful on social networks, as they include the

need to develop new relationships and maintain existing relationships (Kirwan et al., 2023).

The transition to university is a period of social change for young adults, which has been associated with greater emotional loneliness, which is predictive of anxiety and depression (Diehl et al., 2018), with loneliness thought to worsen mental health for university students (Richardson et al., 2017). Loneliness following the transition to university heightened in first year and for international students, relating this to stress, changes to the social network, and homesickness (Korzhina et al., 2022), but may be lower for those who engaged in maintaining relationships online and seeking information about new connections online to facilitate in-person connection (Thomas et al., 2020), with the suggestion that family members of university students should develop and maintain the ability to connect online to offer support (Lee et al., 2018). In a recent systematic review, education-based transitions were associated with positive (personal growth, new relationships, new activities) and negative (loneliness, poor sleep, anxiety) outcomes, with optimism, openness, social support and new connections facilitating the transition (Sundqvist et al., 2024). Furthermore, both support seeking from important others online and opposingly social withdrawal were raised as common coping strategies for loneliness at university, highlighting the need for others when lonely alongside the social pain of loneliness that is sometimes difficult to hide, demonstrating the selective coping strategies dependent on feelings and resources (Vasileiou et al., 2019). Developing strategies to effectively cope with loneliness at university are important, as Diehl et al. (2018) raised that there had been limited exploration of the impact on health and well-being from the loneliness experienced during university. As such, this thesis aimed to explore the transition to

university, online group membership, and the health, well-being and loneliness of young adults during this time.

This narrows the focus of this thesis to the experience of those aged 18-24, in line with that of previous research (Kirwan et al., 2024), to capture the peaks of the loneliness experienced by this age group (ONS, 2018), within the context of emerging adulthood (Arnett, 2007). This thesis will explore the experience of loneliness within a general sample of young adults and within a sample of young adults who experienced the transition to university, with the aim of gaining greater insight into how loneliness is experienced by young adults and the impact on mental health and well-being. Furthermore, the COVID-19 pandemic was a period of disruption to social networks (Lee et al., 2020; McKinlay et al., 2022), which could be argued to be similar to the disruption experienced during a transition, and it was disruptive to normative changes within emerging adulthood (Arnett, 2007; Kirwan et al., 2024), the impact of which will be explored within this thesis.

Loneliness and the COVID-19 pandemic

Following the COVID-19 pandemic, the loneliness experienced by young adults has been evidenced further, with an increase in the number of articles exploring loneliness following the start of the pandemic (Ernst et al., 2022; Holt-Lunstad, 2021; Kirwan et al., 2024). As discussed above, prior to the pandemic there was a recognition of the need to consider loneliness as a public health issue, with this expedited following the outbreak of the pandemic and the subsequent restrictions to prevent the spread of COVID-19 (Beam & Kim, 2020; van Tilberg & de Jong Gieveld, 2023).

On 23rd March 2020, following the declaration by the World Health Organisation of a pandemic from the global outbreak of coronavirus, the UK entered its first lockdown to reduce the transmission of COVID-19, alongside the preventative measures of distancing and use of face masks, with legal requirements surrounding lockdown beginning three days later (Institute for Government, 2022). This would be the first of three national lockdowns, with legal restrictions surrounding socialising lifting on 19th July 2021 (Institute for Government, 2022). This period presented young adults with a loss of routine, loss of in-person connections, loss of support and uncertainty surrounding the future, with it having a substantial impact on students due to loss of social connections (Hemberg et al., 2024). Therefore, the pandemic may be considered a period of collective crisis, as people faced social disruptions and threats, developing sense of togetherness through adhering to new social norms (Bowe et al., 2022; Drury, 2018; Drury et al., 2020; Stevenson et al., 2021). The impact of this being worsening loneliness for women, those who were single, individuals living alone, unemployed, have low social support, and for both older and younger adults (Ernst et al., 2022; Groarke et al., 2020).

When considering the impact of COVID-19 on young adults, increased social media use but lower support seeking predicted loneliness (Listsa et al., 2020), and loneliness was associated with increased substance use (Horigian et al., 2021). Sampogna et al. (2021) demonstrated worsening loneliness as the pandemic progressed, with those experiencing the highest levels of loneliness also experiencing severe mental health difficulties. Although, young adults also described improved awareness of their mental health and a greater sense of appreciation and closeness to family during the pandemic (McKinlay et al., 2023), with close friendships and greater social support protective during this period (Sampogna et al., 2021). Conversely,

loneliness was reported to increase for young adults who had reported higher social support prior to the pandemic and for those who were worried about the impact of the pandemic on social relationships, suggesting the disruption of the pandemic may have been felt to a greater extent by those with stronger social networks, with this loss heightening loneliness (Lee et al., 2020). This may be seen to be supported by young adults describing a smaller number of closer connections that were beneficial for well-being, with it being hard to form new connections during the pandemic and difficult to transfer offline connections online (Hemberg et al., 2024; Kulcar et al., 2022). Although, those lacking social support reported the highest levels of loneliness both prior to and during the pandemic, highlighting the impact of social support (Lee et al., 2020).

Loneliness and social support

As demonstrated above, enhancing social support may be an important intervention in reducing loneliness for young adults (Groake et al., 2020; Lee et al., 2020), and facilitating transitions (Berzin, 2010). Similarly to loneliness, social support has been associated with health outcomes (Uchino, 2009), and social support has been found to be a key predictor of loneliness (Zhang & Dong, 2022) and to partially mediate the relationship between loneliness and mental health (Hutten et al., 2021; So & Fiori, 2022).

Social support may be defined as the resources gained from social relationships, such as assistance and protection (Langford et al., 1997) and has been separated into four distinct areas (Haslam et al., 2018). Informational support refers to advice provided to aid understanding and problem-solve, instrumental support refers to material resources (such as financial support), companionship support refers to appraisal and affirmation, and emotional support refers to caring and encouraging

self-worth and is the most common form of support (Haslam et al., 2005; Langford et al., 1997). Social support can be divided into support received from others and support provided to others, as social support is considered to be reciprocal (Langford et al., 1997). Furthermore, in order to seek social support, there needs to be a degree of social embeddedness within a social network in order for this mutual reciprocity to begin within the social environment (Langford et al., 1997).

Considering this in relation to loneliness, greater social support has been considered to be protective, providing a sense of connection, happiness, and worthiness, with a lack of social support increasing loneliness, through increased stress and a reduced network to rely upon (Binte Mohammad Adib & Sabharwal, 2024), supporting the social needs approach to loneliness (Weiss, 1974). Regarding existential loneliness in young adults, while there was a need to address this alone, social support received was seen to be a comforting relief, with social support provided creating understanding through lack of judgement (Garnow et al., 2024). Further, the source of social support is important, with different relationships acting as various sources of diverse support, for example friendship groups reducing loneliness through social support reducing stress (Lee & Goldstein, 2016; van den Berg et al., 2021), and that as people age familial support becomes less important due to an increasing social network of friendships (Caba Machado et al., 2023; Zhang & Dong, 2022). This demonstrates how social support may be a key variable within the experience of loneliness, with the need to explore how this may work online.

It has been suggested that social support may mediate the relationship between social internet use and loneliness, with greater activity online associated with higher social support and lower loneliness (Lin et al., 2022). This may be apparent in online support groups, which offer connection for those experiencing smaller social

networks, from disability for example (Raghavendra et al., 2013), to fulfil unmet needs (Bender et al., 2013), and develop a sense of identity (Daynes-Kearney & Gallagher, 2024), which may aid loneliness (Raghavendra et al., 2013) and well-being (Coulson, 2013). Therefore, online groups may offer supplementary support for those struggling to receive support offline (Bender et al., 2013), demonstrating another potential application of the findings of this thesis. The exploration of online support groups has previously lacked the application of theory (Daynes-Kearney & Gallagher, 2024; Williams et al., 2020). Therefore, the SIAH would be an appropriate theory to utilise when exploring whether online group membership may provide psychological resources such as social support to help loneliness.

Loneliness, well-being, and social internet use

One such support that has been reported by young adults to be appropriate in helping with loneliness is the use of digital technologies (ONS, 2018). As highlighted above, young adults may be more receptive to online-based interventions for loneliness (Eager et al., 2024; Eccles & Qualter, 2021), and so it is important to explore the relationship between loneliness, well-being and social internet use. Loneliness has a significant influence on well-being (McNamara et al., 2021), and well-being is of increasing interest at policy level and so the implications of online social connectedness and the potential association with well-being is an important area of research (Chan, 2014). There is also the need for policy to be used to inform the use of social networking sites in a way that supports well-being (Verduyn et al., 2017). This thesis will argue that it is more so identification with the online group that will impact loneliness and well-being than the usage of online connectedness, through the psychological resources that identification with the group provides. Prior to this

though, this section will provide an overview of previous research exploring social internet use, well-being, and loneliness.

Loneliness may be increasing, alongside a decrease in in-person interaction and an increase in social internet use (Twenge et al., 2019). This has become more pertinent within the context of COVID-19, with increased online communication (Binte Mohammad Adib & Sabharwal, 2024). Social relationships are increasingly developed and maintained online (boyd & Ellison, 2007), with 98% of those aged 16-24 being online (Ofcom, 2024). In the UK, young people aged 16-24 reported having social media accounts on Instagram (80%), TikTok (74%), Snapchat (73%), Facebook (50%), and X/Twitter (37%) (Ofcom, 2024).

These platforms facilitate social internet use, a method of interaction online with the purpose to connect that can be asynchronous or synchronous (Nowland et al., 2018). Although, the distinction between online and offline relationships is becoming increasingly blurred, a concept known as bridging (boyd & Ellison, 2007), with social internet use maintaining and developing offline connections and forming new connections online that can transfer offline (Ellison et al., 2007; Ellison et al., 2011; Thomas et al., 2017).

Within this, social networks have become observable and through this visibility more connections can be developed (boyd & Ellison, 2007). As such, the concept of context collapse has become relevant, leading to impression management (boyd & Ellison, 2007) through a heightened awareness of what is shared and subsequently viewed by different social spheres (such as family, friends, colleagues) on the same platform (Binder et al., 2012; Brandtzaeg & Lüders, 2018; Thomas et al., 2017) and therefore the need to construct a representative impression online that is

suitable across spheres (Schoenebeck et al., 2016), which has been linked to loneliness (Berezan et al., 2020).

The relationship between social internet use and loneliness is complex, having been explored across platforms and through a variety of uses, such as time spent online (Burke et al., 2011; Coyne et al., 2020; Marquez et al., 2021), active and passive use (Meier et al., 2024; Verduyn et al., 2022), and the development and maintenance of relationships (Ellison et al., 2007; Sosik & Bazarova, 2014), with mixed findings (Nowland et al., 2018).

Nowland et al. (2018) reviewed whether social internet use contributed to an increase in the experience of loneliness and whether the experience of loneliness influenced the way in which people used social technologies. Social internet use can enhance existing relationships and aid in the creation of new connections, or it can be used to withdraw from the social world through the displacement of in-person relationships (Nowland et al., 2018). This may be reflective of loneliness being either motivational, to encourage the development of relationships to address the loneliness, or stagnant, in that loneliness can decrease motivation and increase perceived threat from relationships (Cacioppo & Cacioppo, 2018; Peplau & Perlman, 1979). It was suggested that individuals experiencing loneliness were more likely to engage in social internet use in a way that displaced in-person relationships, indicating that those experiencing loneliness may be in need of support to guide their internet use in a way that is conducive to connecting with others (Nowland et al., 2018). As such, Nowland et al. (2018) proposed a bi-directional relationship between social internet use and loneliness. Supporting this notion of a bi-directional relationship, young adults have described gaining a sense of community online and a distraction from loneliness, but

that it could also highlight loneliness due to not fitting in (Hemburg et al., 2022; Nielsen et al., 2024).

Alternatively, adolescents reported spending less time with others in-person, with this associated with an increase in social internet use, supporting the view that social internet use displaces in-person relationships at cohort level (Twenge et al., 2019). In a meta-analysis of papers exploring loneliness and Facebook use, elevated levels of loneliness were associated with more Facebook use, with loneliness being predicted by shyness and low social support (Song et al., 2014). As such, it was proposed that Facebook may be used in a compensatory way to address a lack of an in-person social network and may be perceived by those individuals to be an appropriate method of addressing loneliness (Song et al., 2014). The use of Facebook to compensate for a lack of in-person connections has been demonstrated in young adults, with those experiencing elevated levels of loneliness also having more Facebook friends (Skues et al., 2012). Together, this supports the displacement hypothesis, whereby lonely individuals withdraw further by focusing on developing online connections rather than in-person connections (Nowland et al., 2018). However, when considered at an individual level, young adults who reported spending time with others in-person also reported spending more time using the internet socially, supporting the view that social internet use may enhance in-person relationships (Twenge et al., 2019), with no association between time spent online and mental health in young adults (Coyne et al., 2020).

This would support the stimulation hypothesis (Nowland et al., 2018), with online connectedness used to maintain existing, in-person relationships and develop new connections (Ellison et al., 2007; Fahy & Barry, 2024). This creates a sense of belonging for those experiencing high levels of perceived loneliness and reinforces

connections for those who already feel connected (Berezan et al., 2020). It was found that less extraverted young adults have improved supportiveness and emotional adjustment when chatting with peers who they only knew online, which may indirectly reduce depressive symptoms, suggesting online connectedness may provide a safe space to develop a sense of social connectedness which may in turn improve self-esteem (Van Zalk et al., 2011).

Online connectedness has been used by young adults as a tool to facilitate the transition to university, which has been encouraged by universities, and involves information seeking about potential new connections to assimilate, and keeping in touch with existing connections to strengthen the home identity, with an awareness of balancing the two connection strategies (Ellison et al., 2007; Ellison et al., 2011; Thomas et al., 2017). Though this demonstrated mixed findings as to whether it may be more beneficial for loneliness to maintain existing relationships online or seek out new ones online during the transition (Sosik & Bazarova, 2014; Yang & Brown, 2013). Therefore, there remains uncertainty as to how and why young adults use online connectedness to develop and maintain relationships during the transition to university, with increasing calls to apply theory and consider the wider social network within research into social internet use, as platform-specific research can quickly become outdated and does not consider how online and offline connections are utilised as a whole (Meier et al., 2024; Thomas et al., 2017). Thus, this thesis aims to explore whether online group memberships supplement social connectivity for young adults when experiencing the transition to university.

In a general sample of adults, it has been shown that a larger online social network was associated with a lower risk of mortality, reflective of the relationship between strong in-person social networks and a lower risk of mortality (Hobbs et al.,

2016). Additionally, the benefits of offline social connectedness may also be found online, with Facebook-derived social connectedness associated with higher subjective well-being, and lower depression and anxiety, which may be an important alternative for isolated populations who may be unable to connect in-person to access support and improve well-being (Grieve et al., 2013). It was suggested that those who engaged in online behaviours that indicated in-person interactions and those who accepted a higher number of Facebook friend requests, rather than the initiation of Facebook friending, had a lower risk of mortality, suggesting using online platforms to maintain relationships may be protective (Hobbs et al., 2016). Furthermore, online communication with important others has been associated with improved well-being (Burke & Kraut, 2016), supporting the notion that online interactions may be beneficial for maintaining relationships and it was argued that social networking sites may strengthen relationships through opening opportunities to connect (Vriens & van Ingen, 2018). It was also found that those who frequently used social media were more likely to develop new ties and lose old ones, suggesting that social media may allow people to connect with those who may offer appropriate support when needed (Vriens & van Ingen, 2018). Supporting this, it has been suggested that the inconsistency in findings regarding social internet use and well-being may be due to the sense of connectedness and belonging, with meaningful connections necessary to enact the benefits of social internet use and behaviours which did not allow connection associated with social comparison and isolation (Clark et al., 2018), providing support for the SIAH as the theoretical underpinning of this thesis.

The importance of distinguishing between the types of social internet use was further highlighted in a review conducted by Verduyn et al. (2017). Social internet use can be active or passive, with active use considered to include the direct exchange of

information and passive use considered to be the observation of information without engagement in an exchange (Verduyn et al., 2017). Passive social internet use is more common and has been associated with lower well-being and while active use has demonstrated mixed results, most studies reviewed suggested that active use was associated with higher well-being (Verduyn et al., 2017). Passive use, also known as lurking, has been attributed to not feeling a need to post, needing to learn more about the group beforehand, feeling helpful by not posting, technical issues, and not liking the group, whereas those who are active within online communities gained a greater sense of community belonging (Preece et al., 2004). However, there remain inconsistencies within the findings comparing active and passive use related to mental health outcomes, with an argument that online behaviours categorised as active or passive are not fully understood or conceptualised, highlighting the need for theory to be applied in this area (Meier et al., 2024). While the relationship between social internet use and loneliness has been explored, a key area to explore further is identification with online group membership and loneliness through the application of the SIAH, as a recent systematic review concluded there are still mixed findings relating to social internet use and loneliness, with online interactions improving connections and providing social support, alongside being excessive and problematic (Binte Mohammad Adib & Sabharwal, 2024).

While there was the view that what is presented online may not be a true picture, a sense of social comparison through online connectedness has been linked to loneliness, with expectations about socialising, both internal and external, leading to comparison and judgement of both friends and strangers online (Fardghassemi & Joffe, 2021; Hemberg et al., 2022; Kirwan et al., 2023; Nielsen et al., 2024; Thomas et al., 2017). Social comparison may be upward, which is the unfavourable

comparison of the self to others to motivate change, or it can be downward, which is the favourable comparison to improve self-esteem (Thomas et al., 2017). This has been linked to impression management online, and an increased sense of fear of missing out (FOMO) (Berezan et al., 2020). FOMO can act as a motivator for connection, as this creates an anxiousness that others are more interesting leading them to experience more which should not be missed (Przybylski et al., 2013), for example through increased engagement with Facebook (Beyens et al., 2016).

When considering the use of specific online platforms and the association this may have with loneliness, across platforms it has been suggested that factors such as the number of connections and the ability to share images may convey a sense of social presence and communicate feelings more effectively and intimately, with it suggested that this may be due to the potential sense of community and therefore belonging created through the various forms of communication and this may act as a reminder to the social support accessible to them and encourage self-esteem (Mackson et al., 2019; Phu & Gow, 2019; Pittman & Reich, 2016). This in turn has been associated with lower loneliness and higher well-being, suggesting support for the processes within the Social Cure (Haslam et al., 2018) acting online, which will be outlined in the following chapter.

Conclusion

This chapter has highlighted the need to explore the experience of loneliness in young adults, as there is a lack of qualitative understanding (Kirwan et al., 2024; Nielsen, et al., 2024) and high rate of prevalence (Hammond, 2018; Department for Digital, Culture, Media & Sport, 2019), due to multiple risk factors leading to detrimental outcomes (Achterbergh et al., 2020; Hemberg et al., 2022). Online connectedness has been reported to be acceptable and potentially helpful in alleviating

loneliness in young adults (ONS, 2018); however, the findings surrounding the effectiveness of this have been mixed (Binte Mohammad Adib & Sabharwal, 2024; Nowland et al., 2018). One possible explanation for this is that much of the previous research into the relationship between social internet use and health outcomes, such as loneliness, has lacked the application of theory which limits understanding (Döring et al., 2022). The need for theory to be applied to this area of research is to be addressed within the thesis. The SIAH is an appropriate theoretical framework to apply to this area within the thesis, as it may provide context and explanation as to why there have been mixed findings within the loneliness literature regarding online connectedness. The SIAH considers sense of belonging, social support and connectedness to be derived from identification with the group, and it is important to explore whether identification with online groups can provide similar resources for group members (Haslam et al., 2018). These factors have been recognised within the loneliness literature as predictive of levels of loneliness, for example greater social support being associated with lower levels of loneliness (Zhang & Dong, 2022), and the quality of relationships as opposed to the quantity of relationship (Cacioppo et al., 2014), reflecting the notion that it is not contact with, but identification with the group which acts as a 'Social Cure' (Haslam et al., 2018). Therefore, the next chapter will outline the Social Identity Approach, relating this to online group membership, to provide further rationale for the aim of the thesis.

Chapter 3. A review of The Social Identity Approach Literature

Chapter Overview

The previous chapter demonstrated the potential detrimental mental and physical health consequences of loneliness (Holt-Lunstad et al., 2015; Wang et al., 2017). However, while there has been exploration of the sociodemographic predictors of loneliness (Victor & Yang, 2012), this does not fully capture the impact of different intersections of social identities on loneliness (Li & Spini, 2022), in particular the experience of loneliness for young adults (Kirwan et al., 2024). Further, there have been mixed findings as to whether online connectedness may be beneficial or detrimental to loneliness (Matook et al., 2015; Nowland et al., 2018). The application of the Social Identity Approach (SIA) to this area could allow understanding into the mechanisms through which online groups support connectedness and how they impact the health, well-being, and loneliness experienced by young adults. This chapter will provide a definition of the SIA and an overview of the relevant literature. Within this, the Social Identity Approach to Health (SIAH) will be of focus, demonstrating the importance of group identification in providing group members with psychological resources, such as social support, to improve health and wellbeing. There has been limited application of the SIAH to online group membership (Daynes-Kearney & Gallagher, 2024; Draper & Dingle, 2021; Finn et al. 2023; McIntyre et al., 2018; Mills et al., 2024), despite this becoming an increasingly prevalent source of group membership. In particular, the Social Identity Model of Identity Change (SIMIC; Iyer et al., 2009) is appropriate to utilise within the present research, given its application to transitional periods and the increased loneliness reported by young adults during transitional periods, though there has been limited application to online group membership during transitions (Ng et al., 2018), highlighting the gap in the literature

surrounding whether social identities can be developed and maintained online, and whether these impact health, well-being and loneliness, which this thesis aims to address.

The Social Identity Approach

The SIA is derived from Social Identity Theory and Self-Categorisation Theory (Hornsey, 2008). Social Identity Theory (SIT, Tajfel, 1982; Turner et al., 1979) outlines the process of categorisation relating to how people view themselves, exploring the formation of groups and behaviour within and between groups. When considered at an intergroup level, a positive sense of self is developed from an individual's social identities and are gained from the social groups one belongs to (Jetten et al., 2012; Tajfel, 1982). Identification with the group brings about a sense of "we" rather than a sense of "I", considering the self in a social context, relating to other group members and other groups (Jetten et al., 2012). This encourages adherence to group norms, which are shared behaviours that are inferred both directly and indirectly which are specific to each group (Hogg & Reid, 2006). SIT posits that group members are more likely to favour members of their own group, the ingroup, rather than members of the outgroup, demonstrating categorisation.

In the initial development of SIT, during a series of experiments, participants were found to allocate more points (of no value) or money, to members of their own group, than to members of the other group (Tajfel & Billig, 1974). This was despite a lack of prior or future connection to the randomly allocated new group and no personal benefit to the distribution of points, suggesting that it is the group membership itself that influenced behaviour demonstrating social identification (Hornsey, 2008; Reicher et al., 1995). Tajfel (1982) argued that through making the ingroup and outgroup salient, it highlighted the distinctions between groups and the similarities within the

group, demonstrating comparison. It has been suggested that this comparison is driven by the desire to achieve positive social identities, and it is through this comparison that people attempt to develop and maintain distinctiveness between the ingroup and outgroups (Hornsey, 2008).

Self-categorisation Theory (SCT, Turner et al., 1987) further developed SIT through the consideration of intragroup processes alongside the intergroup. SCT outlines three categories through which a sense of self is developed which include the superordinate level, the intermediate level and the subordinate level (Hornsey, 2008). The superordinate level refers to human identity (e.g. a human being), the intermediate level refers to social identity (e.g. a member of a social ingroup) and the subordinate level refers to personal identity (which is defined as self-categorisations of interpersonal comparisons). SCT proposed that the level at which people categorise themselves was dependent on the salience of the group (Oakes et al., 1991). When the group is salient, group members are regarded as group prototypes and this process has been related to a sense of group cohesion and depersonalisation (Hornsey, 2008). This sense of group identity and prototypicality provides group members with a framework to the behaviours, norms, and attributes of the group (Hornsey, 2008).

As SIT and SCT were developed through similar assumptions, the Social Identity Approach emerged to encapsulate the two (Hornsey, 2008). The SIA argues that group identity is central to group behaviour (Haslam et al., 2022) and has been applied within a variety of research areas, including ageing, leadership and the workplace, stigma, trauma and recovery, with a particular focus on health, prompting the development of the SIAH (Haslam et al., 2018).

The Social Identity Approach to Health

The SIAH has outlined that group memberships, importantly the social identities gained from membership, can act as a 'Social Cure' (Haslam et al., 2018). The approach outlines the processes through which identification with the group can improve health (Jones & Jetten, 2011; Miller et al., 2016; Sani et al., 2015b), well-being (Cruwys et al., 2014; Sani et al., 2015a), and loneliness (Haslam et al., 2022; Hayes et al., 2022; McNamara et al., 2021), through providing psychological resources such as a sense of belonging, social support, self-esteem, and encouraging healthy norms (Greenaway et al., 2016; Haslam et al., 2018; Sani et al., 2015b). This body of research provides support for applying the SIAH to exploring the relationship between online group membership and health, well-being and loneliness in this thesis, with the key concepts relevant to the present research outlined below.

The importance of identification with the social group for health and well-being is central to the SIAH. It was raised that previous measurements of social integration had focused more on social contact, which failed to consider the subjective aspects of belonging (Sani et al, 2012). Group identification was found to be a better predicter of mental health than contact alone, with this work furthering the understanding of the importance of identification with the group, demonstrating the impact on health (Sani et al., 2012). This provides justification for exploring online group identification as a potential explanation of the mixed findings regarding loneliness and social internet use (Nowland et al., 2018) in this thesis, as compared to that of contact previously explored (Marquez et al., 2023). Furthermore, it also provides support for online group membership being a potential source of belonging and social support, as SIAH would argue it is not contact but identification that provides such resources, which could allow access to resources for those who may

otherwise struggle with in-person groups (Daynes-Kearney & Gallagher, 2024; Mills et al., 2024).

Social support is a key variable within both the SIAH and loneliness literature (Haslam et al., 2022; McNamara et al., 2021), as demonstrated in Chapter 2. Social support intends to improve health and well-being through the exchange of resources (for example, material, emotional, or informational) between either individuals or groups (Haslam et al., 2012). It is thought that social support acts as a protective buffer against stressors and aids in appraising coping strategies for stressful situations, and it is through this that social support influences health outcomes (Greenaway et al., 2016). Social support is important to consider within the current thesis as the SIAH posits that social support is both received and provided between those with a shared identity and can act as a mediator between identification and health (Steffens et al., 2016b), life satisfaction (Haslam et al., 2005), and loneliness (McNamara et al., 2021). Furthermore, a shared social identity allows greater openness for the receiver to accept support and for it to be perceived as more effective (Haslam et al., 2004; Haslam et al., 2005; Haslam et al., 2012).

Drawing from the cyberpsychology and loneliness literature, the inclusion of social support within the present thesis is justified further, as the provision and receipt of support has been demonstrated to be a key factor within online groups (Coulson, 2013; Soos et al., 2022). Being a member of an online support group may provide a sense of improved well-being (Coulson, 2013), which supported the SIAH perspective (Haslam et al., 2018) but lacked theoretical underpinning. Online support groups can offer greater accessibility to support, variety within the experiences discussed, anonymity to assist in disclosure, and support through shared understanding (Coulson, 2013; Williams et al., 2020). This sense of support found within online groups may

be associated with a sense of community and belonging found through social internet use (Nowland et al., 2018), further supporting the application of SIAH to the current research.

However, in initial research when comparing the social support received offline to that received online, it has been suggested that only the support received offline was significantly associated with well-being (Trepte et al., 2013). Moreover, a lack of social support in online relationships, and lower perceived effectiveness of support from online relationships as compared to in-person relationships, may also contribute to a sense of loneliness (Nowland et al., 2018). Young people who reported feeling as though they did not have someone to turn to for help were more likely to report feeling lonely often (ONS, 2018), with low social support identified as a key concept with the experience of loneliness for young people with depression, as non-disclosure of their diagnosis created a sense of distance, and although there was a desire to connect, this was accompanied with feeling the need to withdraw from social relationships (Achterbergh et al., 2020; Pearce et al., 2023). Furthermore, higher levels of social support have been associated with reduced levels of loneliness (Pineda et al., 2022). Therefore, it is important to explore the levels of social support, both provided and received, within the online group memberships of young adults, as this could be a key variable through which loneliness, health, and well-being may be impacted, in line with the SIAH (Haslam et al., 2018) and it had been suggested that future research should consider the role of social identities within online groups, as it would be important to explore how online group identities could be utilised to support health (Williams et al., 2020).

Identification with multiple groups has been demonstrated to provide an additive effect, with a positive association between the greater the number of

identifications and mental and physical health (Charles et al., 2023; Haslam et al., 2008). Group memberships provide individuals with social and psychological resources and having multiple identities provides greater access to such resources (Greenaway et al., 2016; Iyer et al., 2009). For example, it may be that multiple group memberships may provide different types of social support, and so individuals have the knowledge that they can access that which is most appropriate when needed (Haslam et al., 2008). It has been demonstrated that belonging to a greater number of groups can have a positive effect on well-being (Haslam et al., 2008; Iyer et al., 2009), depression (Sani et al., 2015), and reduced loneliness (van Dick et al., 2023), through the maintenance and continuation of different social identities, as belonging to more groups meant that there was a higher likelihood of maintaining more groups following a life transition or stressor, compared to belonging to fewer groups. As such, it would be important to consider whether multiple online group memberships could produce a similar additive effect on well-being to that demonstrated in offline group memberships (Charles et al., 2023; Greenaway et al., 2016; Iyer et al., 2009). Furthermore, whether possessing multiple online group membership may support the transition to university is also of interest in this thesis.

The Social Identity Model of Identity Change

Multiple group memberships may provide a continuation of social support during times of transition and having multiple identities has been demonstrated to be important across a number of transitions, such as the postpartum experience of mothers (Seymour-Smith et al., 2017), starting university (Iyer et al., 2009), retirement (Steffens et al., 2016a), and illness (Haslam et al., 2008; McNamara et al., 2017). SIMIC articulates how belonging to multiple groups, the ability to maintain group memberships, and to develop new social identities following a life transition

(provided these are compatible with existing identities), can be protective for well-being (Haslam et al., 2021). The model provides a framework to map the processes of identity change following a life change such as the transition to university (Haslam et al., 2021), with this thesis exploring whether online group membership may map on to this framework.

Identity change can be experienced during life transitions, which may be perceived to be positive (e.g. starting a new job) or negative (e.g. retirement), anticipated (e.g. starting university; Iyer et al., 2009) or unexpected (e.g. experiencing illness; Cheung et al., 2024). Within the transitional period, social networks may be disrupted creating a situation that may elicit identity change, through which group memberships may be developed, maintained, or lost (Iyer et al., 2009). Existing group memberships can act as a resource to draw upon during transitions, offering support, a sense of belonging, and a continued sense of self (Haslam et al., 2018), whereas the potential loss of existing group memberships can be difficult as losing self-continuity has the potential to affect well-being and loneliness (Haslam et al., 2008; Haslam et al., 2018; Haslam et al., 2022; Iyer et al., 2009). Furthermore, it is important to gain new social identities to allow access to belonging in the new environment and new support systems which encourage personal growth (Haslam et al., 2018). The above outlines the two main pathways that can support health and well-being within the SIMIC, the social identity continuity pathway and the social identity gain pathway. These two pathways then need to be considered together, as the new and existing identities should be compatible in order to support health and well-being (Haslam et al., 2018).

Compatibility may be defined as the ease at which different identities can be shifted between, or whether identities are incompatible and thus create conflict

between identities, for example through differing expectations from different identities such as being a working parent (Jones & Hynie, 2017). When considering the management of identity (in)compatibility, Jones and Hynie (2017) proposed four strategies to address identity conflict within multiple group membership. Greater numbers of positive identities and greater numbers of important identities have been associated with *reconciliation*, a process whereby people attempt to integrate aspects of different identities in order to ensure compatibility, and this was considered to be the strategy most widely used (Jones & Hynie, 2017). However greater conflict between identities was associated with the strategies of *realignment*, which prioritised one identity to enact, and *retreating*, in which the two conflicting identities were ignored. *Reflection* was the final method, where people consider the fit of identities to decide on identity selection. It has been raised that while there is support for the concepts within SIMIC, the full model has rarely been explored and supported, with limited exploration of identity compatibility (Haslam et al., 2021; McNamara et al., 2017; McNamara et al., 2024), which will be of interest in the present research, as it will be important to explore how young adults manage the transition to university in terms of ensuring group compatibility, how young adults experience (in)compatibility during the transition and whether online group membership plays a role in the management of (in)compatibility.

Focusing on the transition to university, as this will be explored within the thesis, initial research applying the SIMIC to the transition to university found that perceived incompatibility between the new university identity and previous identities was associated with lower well-being following the transition (Iyer et al., 2009). Additionally, fewer group memberships prior to the transition were associated with a lack of identification with the university identity (Iyer et al., 2009). It was suggested

that the existence of a larger social network prior to transition would facilitate the development of new identities, as having more social identities acted as a foundation on which to develop new ones and that, if compatible, this would support identification with new groups. If incompatible, the existing network may prevent identification with the new group which may negatively affect well-being, supporting SIMIC (Iyer et al., 2009).

Prior to this article, there had been little research into the effect of the social network in relation to experiencing identity change during transitions (Iyer et al., 2009). Since then, SIMIC has been applied to understanding adjustment to university and the experiences of international students, with this highlighting the importance of social identity continuity for academic performance and retention (Cruwys et al., 2020), and the negative impact of identity loss on well-being (Praharso et al., 2017). As raised in the previous chapter, maintaining connections with important groups online may be protective for loneliness during the transition to university (Thomas et al., 2020), alongside seeking information about new connections online (Ellison et al., 2011), which would support the pathways outlined by SIMIC. However, there is a lack of understanding as to how young adults may bridge online and offline connections (Thomas et al., 2017), with SIMIC being a potential useful theoretical model to explore this within (Stuart et al., 2022). Ng et al. (2018) described the importance of online groups in both supporting international students' ability to maintain connections with family and friends in their home countries and in developing new identities at university. This finding was described as unexpected, indicating that online connectedness was not explored by the researchers but raised by the participants as an important method of facilitating identity gain and continuity. This warrants further investigation and as there has been limited qualitative

exploration of SIMIC (Ng et al., 2018), this thesis aims to explore the use of online group memberships during the transition to university, as greater understanding of this could facilitate better adjustment to university.

The knowledge gained from exploring SIMIC demonstrates how interventions may target the pathways within model to support those experiencing a transition (Haslam et al., 2021). Social Identity Mapping (Bentley et al., 2020; Cruwys et al., 2016) was a tool developed to capture the principles of SIMIC, in which a visual map of the social identity network is created to demonstrate the social groups within the network, the characteristics of the groups (e.g. importance, supportiveness, engagement), and the similarities and compatibilities of the groups (Haslam et al., 2021). It is thought that through creating the map, an understanding of the psychological resources available (both the positive and negative) from each of the identities within the network may be highlighted and can be used as an intervention to support periods of transition (Haslam et al., 2021). Therefore, it is appropriate that the online version of the tool, the oSIM, will be used within the thesis, as it will allow for the exploration of how online group membership is experienced by young adults within their identity networks following the transition to university. As highlighted in Chapter 2, given that times of transition are a potential predictor of loneliness within young adults (Evans et al., 2022), it is important to consider whether online groups may be applicable within the SIMIC, and whether online groups may be used to maintain and develop multiple identities during the transition to university which could be protective against loneliness.

Building on the multiple group membership research, a new concept within the SIAH is that of group-type diversity (Charles et al., 2023). Charles et al. (2023) argued it is important to consider whether it is belonging to multiple groups, or belonging to

multiple different types of groups, that may impact health and well-being, for example, belonging to a friendship and an educational group, compared with belonging to two educational groups. A positive relationship between group-type diversity and well-being was found, with increased creative self-efficacy through higher levels of group-type diversity associated with reduced loneliness (Charles et al., 2023). Creative self-efficacy is important for loneliness, as it allows people to consider ways to address loneliness through things such as cognitive flexibility and problem solving, adapting to stressful situations as opposed to the cognitive inflexibility and increased social threat perception usually associated with loneliness (Charles et al., 2023). It was suggested that it may be important for interventions into loneliness to consider diversifying the types of groups individuals belong to (Charles et al., 2023). Consequently, it would be important to explore whether multiple online group membership, or different types of online group membership, impact health, well-being and loneliness in the present research.

The SIAH and loneliness

Loneliness is another emerging area of research within the Social Cure literature (Wakefield et al., 2020). The SIAH regards loneliness to stem from losing or lacking social identities and the subsequent absence of associated psychological resources, which would then impact health (Haslam et al., 2022; Hayes et al., 2022). Providing support for this position, recent investigations have demonstrated that low levels of connectedness with social groups have been associated with more frequent attendance at primary care services, whereas when social needs were met, a reduction in primary care attendance was observed, suggesting attendance is not solely based on health needs but on social ones too (Cruwys et al., 2018). Therefore, it has been argued that the key component for loneliness interventions, such as social prescribing, is to

harness the group identity processes outlined in the SIAH literature, which focus on developing and maintaining social groups to gain meaning, connection, and support (Halder et al., 2021; Haslam et al., 2022; Haslam et al., 2024; Hayes et al., 2022; Kellezi et al., 2019; Stuart et al., 2022).

Supporting the importance of social groups for reducing loneliness and mental distress, McIntyre et al. (2018) investigated the social determinants of mental health, as there has been limited research into whether social groups can act as a protective factor for the mental well-being of young adults. Loneliness was found to be the strongest predictor of mental distress for university students, with university friendship groups the most effective protective factor, highlighting the importance of social identification in reducing loneliness. Loneliness was found to mediate identification with the university friendship group and depression and paranoia, supporting the SIMIC identity gain pathway that developing friendships at university will be protective for health and well-being (McIntyre et al., 2018). These findings demonstrate the need to further investigate whether and how social identities (both online and offline) may be drawn upon during the transition to university and the impact this may have on health, well-being and loneliness.

When considering the impact of the COVID-19 pandemic on the loneliness and mental health of first year university students at an Australian university, over the course of three intakes (2019, 2020, and 2021), Dingle et al. (2022) found students in the 2020 intake experienced significantly higher levels of loneliness than students in the other intakes. This highlighted the reduction in the number of opportunities to develop new connections, which was also related to reduced university identification in the 2020 sample, compared to the other samples (Dingle et al., 2022), supporting the findings of Evans et al. (2022) in which online learning was perceived to increase

feelings of loneliness due to fewer new groups joined and lower identification with other university students. This supported the notion that multiple group membership may act as a resource during times of transition, as it was associated with higher sense of university belonging and negatively related to loneliness (Dingle et al., 2022).

While research into the Social Cure has aided in the understanding of the processes through which offline group membership can improve the health and well-being of group members, there has been limited application to online group membership (Finn et al., 2023). Accordingly, there is the need to explore whether online group memberships may offer the same psychological benefits that offline groups do (Pendry & Salvatore, 2015). Furthermore, given the increasing prevalence of social internet use, and since the COVID-19 pandemic has demonstrated online and offline groups are no longer distinct categories, there is a greater need to explore the role of online social identities.

Social identities online

Initially within the SIA literature, it had been suggested that increased social internet use has been associated with less involvement with offline communities (Jetten et al., 2009). As such, it has been argued that online networking may replace offline engagement (Jetten et al., 2009), supporting the 'displacement' argument within the loneliness literature discussed in Chapter 2. While online group engagement may be reinforced by the shared group identity created, it has been suggested that a strong in-group identity online may be associated with disengagement from offline support (Knudsen et al., 2012). Furthermore, there has been the suggestion that online identification may not be meaningful, compared to real-world groups (Jetten et al., 2009; Pendry & Salvatore, 2015). However, these assumptions

that social internet use may be detrimental to connectedness highlight the need to investigate this area further.

One area that has begun to investigate social identities enacted online is research surrounding online support groups. McNamara and Parsons (2016) investigated the role of shared identity within eating disorder recovery in an online support group. Those who had a shared understanding of living with an eating disorder were considered more empathetic and the desire to find this understanding was a motivator for joining the online group, with this supporting the notion that a shared social identity can aid in the provision and acceptance of support (McNamara & Parsons, 2016). This would indicate SIAH processes are being demonstrated in online groups, which is important to consider given the need for investigations into the effectiveness of social internet use for health which have a theoretical basis (Bliuc et al., 2019). Furthermore, this provides support for the investigation of online supportive interactions during other life transitions, such as starting university, which is an aim of this thesis.

Within online recovery communities, a sense of belonging and positive social identity has been reported (Best et al., 2018), with the online groups providing access to information and support from the online network, with the perception that this supported their recovery (Bluic et al., 2017). The use of, and identification with, online recovery communities has been explored using social network analysis, as it was recognised that technology is becoming increasingly prevalent within social interactions (SNA; Best et al., 2018; Bliuc et al., 2017). The use of SNA was useful and novel within the SIA, as it provided a map of the structure of groups within the network and of the connections between group members within the group (Best et al., 2018). Differences in online engagement and roles within the network were found

between the older and newer group members, with older members having a higher degree of centrality within the network, connecting to a greater extent with other members. It was suggested that the group's developing identity was demonstrated and that participants felt that through identity change being visible within the online group, this would help other members as well as themselves in the development of a recovery identity and that it acted as an additional support for members who highly identified with the online group (Best et al., 2018; Bliuc et al., 2017). This initial work would suggest that social identities can be developed and utilised within online groups, though it remained unclear as to whether online group memberships may offer similar health benefits to those associated with offline group memberships.

McIntyre et al. (2018) included online group membership in the investigation of social identification acting as a psychological resource against mental distress for university students. While there was initial correlational support for an association between online community and mental distress, this was not significantly associated with mental distress in the regression analyses. This may be explained by the findings of Draper and Dingle (2021), as online identification may differ to offline identification. Draper and Dingle (2021) conducted a cross-sectional survey to explore the impact of in-person music groups transferring online due to the COVID-19 pandemic, with the findings demonstrating group identification within the online group to be significantly lower than group identification within the in-person group, with psychological need satisfaction lower for online groups than in-person groups. It was suggested that this difference may have been due to the difficulties of hosting a music group within an online setting as opposed to identification with the online group being the issue, as online group identification, while lower than in-person, was still present and it could be argued online group membership within this study was used to

maintain an existing social identity (Draper & Dingle, 2021). Together, the findings of these two studies suggest initial support for online identification; however, it would also suggest that identification with online groups may not be as strong as offline groups, which in turn may impact the SIAH processes associated with identification, indicating a need to investigate this further.

Building on the work of Draper and Dingle (2021), Finn et al. (2023) explored whether Social Cure principles were applicable within an online dance group for young people experiencing anxiety. The qualitative findings suggested that a sense of shared identity was created within the online group, with an emphasis on the group being inclusive, and the importance of a shared experience and sense of meaning was highlighted by participants, rather than a sense of membership and belonging which were considered to be exclusionary (Finn et al., 2023). From this and in line with SIAH, the group also offered a sense of physical and social well-being, through both the dance activity and sense of social connectedness with other group members (Finn et al., 2023). The quantitative findings supported the qualitative findings, with lower anxiety, loneliness and depression, and higher well-being, self-esteem and self-efficacy reported (Finn et al., 2023). The rejection of the language of 'belonging' within this study may have been due to the online nature of the group, as it implied to participants that the group had fewer boundaries and contributed to a sense of inclusivity, thereby negating an out-group (Finn et al., 2023). Alternatively, it may have been that the sense of belonging had not fully developed online in the way it may do in-person, as participants described feeling as though relationships would have developed more had the intervention been delivered in-person (Finn et al., 2023). While the study provided support for Social Cure principles within an online group, it also demonstrated differences in online group membership to in-person group

membership, highlighting the need for further exploration of the application of SIAH within an online context to understand these potential differences. For example, Mills et al. (2024) found that the benefits of different online groups varied across factors such as the size, type and platform of the group, such as groups of a smaller size encouraged greater feelings of community.

Daynes-Kearney and Gallagher (2024) qualitatively explored whether and how group identification could be developed within an online support group for family caregivers, arguing that group identification online was built through a sense of togetherness through shared experience, an awareness that support was available within the group, and consistent, active moderation of the group to create a safe online space. This shared sense of connection and support helped with feelings of loneliness and isolation, suggesting Social Cure processes operating within an online group setting (Daynes-Kearney & Gallagher, 2024). It was highlighted that if the exploration of online support groups was not underpinned with an appropriate theoretical understanding, this could impact the effectiveness of such groups, and that the SIA (Hornsey, 2008) could be considered to be a key theoretical framework to help understand the development of online connectedness (Daynes-Kearney & Gallagher, 2024). This argument is central to the present thesis, as SIAH will be utilised to aid in the understanding of whether and how identification can be developed within online group memberships and the potential impact health, well-being and loneliness. However, while each of these previous studies has researched a specific online group, the present thesis would be the first to explore a range of online group memberships. Therefore, exploring the role of social identities in a variety of online groups, and the impact this has on health, well-being and the experience of loneliness for young adults within the current thesis, would be an important contribution to the SIAH literature.

These studies form the basis of this new area of research exploring group identification with online groups. These studies have examined specific online groups, and so the thesis aims to broaden this context, exploring what online groups young adults are currently using, whether they identify with them, and the extent to which these groups may impact health, wellbeing and loneliness.

Conclusion

As highlighted in this overview of the literature, SIAH research has focused on factors that contribute to, and how to alleviate loneliness, with little consideration of how online group membership may play a role in this process. This is limiting, as both the loneliness and cyberpsychology literatures have indicated that there may be a bi-directional relationship between loneliness and social internet use (Nowland et al., 2018), with the suggestion that it is not the amount of social internet use but how social interactions are carried out online that contributes to the level of loneliness experienced. This highlights both the gap and connection between the three bodies of literature reviewed in the present thesis, as it may be that identification with the online group, as in offline group membership, may help understand this proposed bi-directional relationship.

This thesis aimed to explore how the health, well-being and loneliness of young adults may be associated with identification with online groups. Previous research has considered social identities that exist within the offline world; however, less research has explored whether social identities can be developed and be maintained online, and whether this is supplementary to, and compatible with, offline social identities. It is also important to consider the potential impact of identification with the online group on loneliness, as although social internet use has been reported by young adults as a way to maintain connections (Ofcom, 2024), young adults also

feel as though online communication has surpassed offline communication (Glowacz & Schmits, 2020; Mental Health Foundation, 2010). As social internet use is widely used by young people, it has been suggested that online interventions may be an effective delivery method for young people and perceived as an acceptable measure to address the loneliness experienced by young people (Eccles & Qualter, 2021; ONS, 2018), highlighting a potential application of the findings of the present thesis.

Research Questions

The primary aim of this research is to investigate whether users of online groups experience health-related benefits or costs through the extent to which they identify with the group. The research will investigate whether online group membership can be used to maintain existing group memberships and develop new identities for young adults when experiencing the transition to university, and how online group membership is associated with mental health, wellbeing and loneliness over time. The research will also explore how online groups are integrated alongside real-world groups, and the distinction between these groups, in young adults' identity networks, within the context of the COVID-19 pandemic. The following research questions were developed:

Research Question 1: Does online group membership impact the mental health, well-being and experience of loneliness of young adults aged 18-24?

Research Question 2: Does online group membership supplement social connectivity for young adults aged 18-24 when experiencing the transition to university?

Research Question 3: How has COVID-19 shaped online group membership and loneliness for young adults aged 18-24 who experienced the transition to university following the COVID-19 pandemic?

Chapter 4. Methodology

Chapter Overview

The previous chapters provided an overview of the literature surrounding loneliness and the SIAH which guided the development of this thesis. The present chapter will outline the methodology used to address the research questions - a mixed methods approach using explanatory sequential design. This design collects and analyses quantitative data initially, followed by qualitative data collection and analysis with the aim of explaining the quantitative findings in greater depth (Creswell & Plano Clark, 2018). This approach was chosen as the variables of interest within the SIAH literature are well-defined and researched for offline group membership, and so the application of this to online group membership was considered appropriate in the first phase of data collection in the thesis (Creswell & Plano Clark, 2018). This chapter will provide justification for using a mixed methods approach, and an overview of how the methodology will address the research questions.

A Mixed Methods Approach of Explanatory Sequential Design

Initial research into identification with online groups and the potential associated health benefits (or costs) has utilised quantitative (Draper & Dingle, 2021; Evans et al., 2022; McIntyre et al., 2018), qualitative (Daynes-Kearney & Gallagher, 2024; Mills et al., 2024), and mixed methods (Finn et al. 2023) approaches. The quantitative findings from previous work have demonstrated mixed results, suggesting that identification with an online group may not be as strong as that found in-person (Draper & Dingle, 2021; McIntyre et al., 2018). The qualitative findings have highlighted the development of identification with online groups and its meaning to participants (Daynes-Kearney & Gallagher, 2024; Finn et al. 2023; Mills et al., 2024).

The current thesis chose an explanatory sequential design as the variables of interest have been well-defined and quantitatively researched within the SIAH literature for offline group membership (for example, identification, social support, satisfaction with life; Creswell & Plano Clark, 2018), therefore applying this to online group membership was considered to be an appropriate choice for the first phase of the research, to explore RQ1 and RQ2. Following this, qualitative data was collected to address RQ3, which also provided context and therefore greater understanding to the quantitative findings, with the integration of both providing an in-depth awareness of how and when social identities can be developed online, and the link to well-being and loneliness for young adults. Therefore, Study 1a was solely quantitative, with Studies 1b and 2 having a mainly quantitative focus with the addition of qualitative data, to create a basis from which to develop Study 3. The findings of Studies 1 and 2 informed the design of Study 3, with the qualitative phase used to try and explain the previous quantitative findings.

The use of a mixed methods approach is a strength of this thesis. While quantitative data can provide an overview of a topic, qualitative data can provide greater nuance, and used together, the limitations of each method can be countered by the other to provide a more comprehensive understanding than that of a single method (Creswell & Plano Clark, 2018), highlighting a strength of explanatory sequential design. Another strength is that it is a straightforward and manageable method for researchers (Creswell & Plano Clark, 2018). Additionally, using an explanatory sequential design the qualitative phase can be used to attempt to explain initial (or unexpected) quantitative findings (Creswell & Plano Clark, 2018). However, a potential limitation of explanatory sequential design is that researchers sometimes have difficulties choosing the quantitative findings in need of further qualitative

exploration (Creswell & Plano Clark, 2018). Furthermore, the design may lead to an overemphasis of the quantitative, thereby limiting the qualitative enquiry, as interesting qualitative findings cannot be further explored due to time constraints (Ivankova et al., 2006). As such, it is important to integrate the findings, as to not further prioritise the quantitative, but to allow understanding of the quantitative through the qualitative (Ivankova et al., 2006). However, this highlights a criticism of mixed methods research, in that the integration of findings can be difficult (Sharma et al., 2023).

In the thesis, an explanatory sequential design was used to gain a quantitative overview of SIAH variables within an online context, in an attempt to replicate some of the relationships between Social Cure variables of previous SIAH literature (Charles et al., 2023; Iyer et al., 2009; Haslam et al., 2008; McNamara et al., 2021; Sani et al. 2012) in Studies 1 and 2. However, with the outbreak of the COVID-19 pandemic in 2020, at the end of the data collection period of Study 1a, it was felt important to include a small, qualitative aspect within the quantitative phase, to gain insight into the impact of the pandemic for participants of Studies 1b and 2. Furthermore, in the qualitative phase, a quantitative aspect was also included in Study 3, in the inclusion of the online Social Identity Mapping (oSIM; Bentley et al., 2019; Cruwys et al., 2016). Therefore, while a primarily explanatory sequential design was used, it was adapted so that each phase included a component of the other. This was done as it allowed for a more inclusive understanding of online group membership, and how it was experienced by young adults during a time of increased online interaction because of the pandemic.

When considering how the explanatory sequential design will be used to address the research questions asked in this thesis, the first research question explored

whether online group membership impacted the health, well-being and experience of loneliness of young adults. As discussed above, the quantitative phase of the thesis aimed to address this through the replication of previous SIAH processes, to explore whether this may occur online. Much of the SIAH literature has begun through quantitative investigations (Haslam et al., 2005; Sani et al., 2012; Stevenson et al., 2021), in particular surveys (Sani et al., 2015a; Sani et al., 2015b), using validated scales for the variables of interest (Diener et al., 1985; Haslam et al., 2008; Hughes et al., 2004; Kessler et al., 2002; Postmes et al., 2013). Therefore, it was considered that this would be an appropriate method to begin with to address RQ1 in Study 1, in a sample of young adults aged 18-24. This sample was chosen as loneliness is prevalent in young adults, though previous research in the loneliness literature has had a tendency to focus on specific groups, for example young adults experiencing health conditions who experience loneliness as a result of a health condition (Eccles & Qualter, 2021), and this has previously been raised as a potential bias of the findings (Hemburg et al., 2022). Consequently, it was felt important to explore the experiences of loneliness those aged 18-24 to provide a more general overview.

Study 1 comprised of two cross-sectional surveys, one prior to the pandemic and one during (Study 1a and 1b). Study 1b was a re-release of the survey used within Study 1a, with the inclusion of some quantitative and qualitative questions about the experience of COVID-19. Content analysis was carried out on responses to an open-ended question, with the aim of providing some context to the quantitative findings and an understanding of the impact of the pandemic on staying connected, as content analysis has previously been used to explore loneliness in young adults (Hemburg et al., 2022). An inductive approach to the content analysis was used (Elo & Kyngas,

2007), as this was data led due to there being little understanding of the social impact of the pandemic at the time.

Building on Study 1, Study 2 aimed to focus on a transitional period for young adults, as the previous literature suggested that this may be associated with a peak in experiencing loneliness at the ages of 18 and 21 (ONS, 2018; Sundqvist et al., 2024), which may be a result of disruption to social networks (Hawkins et al., 2024). Though young adults can experience multiple transitions at this age, it was felt important and practical to explore the transition to university in Study 2. The transition to university may encompass a variety of changes, such as moving away from home, starting work, developing new connections, all within the transition into emerging adulthood (Arnett, 2007; Hemburg et al., 2022; Kirwan et al., 2024). It also presented an accessible sample, experiencing the transition together within a specific timeframe, facilitating the data collection period. Furthermore, the potential application of the findings may aid in supporting the transition to university for young adults, and so this focus was felt appropriate and important (Buote et al., 2007; Fardghassemi & Joffe, 2022; Thompson et al., 2021). Additionally, there is a need for the longitudinal exploration of loneliness to explore how and when loneliness may be experienced (Department for Digital, Culture, Media & Sport, 2023; Kirwan et al., 2024; Mann et al., 2022; Von Soest et al., 2020), with Study 2 aiming to add to this literature by exploring whether online group membership may supplement social connectivity for young adults aged 18-24 when experiencing the transition to university, using two online surveys, 6 months apart. Within the SIAH literature, the transition to university has previously been explored longitudinally (Iyer et al., 2009; Cruwys et al., 2020; Praharso et al., 2017), and qualitatively participants have raised the importance of online groups in supporting the transition, but this was not the focus of the research, and it has since

not been researched further (Ng et al., 2018). Furthermore, there is the need to explore longitudinally whether the SIMIC pathways may support adjustment to university (Ng et al., 2018). Therefore, it was felt appropriate that RQ2 which explored whether online group membership supplemented social connectivity for young adults aged 18-24 when experiencing the transition to university, was explored quantitatively through a longitudinal survey. Open-ended questions were included in Study 2, again to provide context to the quantitative findings and an understanding of the impact of the pandemic on staying connected and starting university, using an inductive approach to the content analysis (Elo & Kyngas, 2007).

It was hoped Studies 1 and 2 would provide a more general, initial insight into social identities online. Subsequently, Study 3 aimed to address the limitations of quantitative research through the in-depth qualitative exploration of how COVID-19 shaped online group membership and loneliness for young adults aged 18-24 who experienced the transition to university following the COVID-19 pandemic, addressing RQ3. Further, while online groups have been raised by participants of previous studies to be useful within periods of identity change (Hawkins et al., 2024; Ng et al., 2018), no research has directly explored this, and so the qualitative phase of this thesis also attempted to explain the quantitative findings of the previous studies (Creswell & Plano Clark, 2018), addressing RQ2.

It has also been recommended that there is a need to conduct more qualitative research considering the subjective experience of loneliness from the perspective of young adults (Kirwan et al., 2024), and the experience of transition and loneliness (Sundqvist et al., 2024) and the impact of COVID-19 during this time (Evans et al., 2022), which the final study aimed to contribute to. In the scoping review of loneliness in young adulthood carried out by Kirwan et al. (2024), the only qualitative study

included was by Fardghassemi and Joffe (2021), which explored the experiences of young adults living in deprived areas of London. As such, it was recommended that a broader look at the loneliness experienced by young adults living in the UK using qualitative methods was needed, to allow young adults to describe the meaning of loneliness and how it is experienced in emerging adulthood (Kirwan et al., 2024; Malli et al., 2023; Nielsen et al., 2024).

The semi-structured interviews explored questions relating to when and how young adults experienced their social groups online and the integration of online and offline groups (Kaye et al., 2024; Thomas et al., 2017). The data would then be analysed by using theoretically-guided thematic analysis (Braun & Clarke, 2022), using SIAH as a conceptual framework, to explore potential social identity processes within online group membership and participant's social networks as a whole following the transition to university. Thematic analysis allows insight into process and meaning through emersion with the data to produce themes guided by theory (Braun & Clarke, 2022), which will be used to understand the quantitative findings as well as the qualitative findings. Previous qualitative research in this area has highlighted the development of identification with online groups (Daynes-Kearney & Gallagher, 2024; Finn et al. 2023; Mills et al., 2024) and so the use of this as the final study was considered appropriate.

In addition to the semi-structured interviews, the oSIM (Bentley et al., 2019; Cruwys et al., 2016) was used within the interview, to be a qualitative prompt and a quantitative method of data collection. It was felt important to include the oSIM as this would provide information about participants online and offline social networks, with visual representation as to how young adults perceive and engage with the groups as a whole, providing greater insight into RQ2 and RQ3. The oSIM tool could collect

the quantitative data about groups, such as how supportive a group was, while follow-up questions about this could be asked adding qualitative detail (Cubis et al., 2023; Streete, 2020). The integration of the oSIM with the semi-structured interview provided greater detail into the relationship between online and offline groups, how and when both aspects are used, and the experiences of loneliness in young adults, exploring cross-platform experiences of online group membership as to not be hindered by an outdated platform and to capture the social network as a whole (Meier et al., 2024). This supports the recommendation to explore the complexities of social internet use, well-being, and loneliness through the use of a mixed methods approach (Fahy & Barry, 2024) and it is hoped that this will provide a better understanding of the virtual Social Cure (Haslam et al., 2018).

Conclusion

In conclusion, an explanatory sequential design was carried out with the aim of exploring the role of social identities in online groups, the interplay between online and offline groups, and the impact this has on health, well-being and the experience of loneliness for young adults in this thesis. This approach was considered to be the most appropriate method of addressing the research questions of the thesis, as the quantitative findings will provide an overview of whether Social Cure processes occur in online group membership, with the qualitative findings providing insight into when and how online group membership may be beneficial for well-being and loneliness. Together, the quantitative and qualitative findings of all three studies were integrated to address the three research questions of the thesis within the General Discussion.

Chapter 5. Study 1: Examining the impact of online group membership on mental health and well-being, prior to and during the COVID-19 pandemic

Chapter Overview

The current study will explore the role of social identities in online groups, and the impact this has on health, well-being and the experience of loneliness for young adults, with the aim of addressing the following research question:

RQ1: Does online group membership impact the mental health, well-being and experience of loneliness of young adults aged 18-24?

Study 1 comprises of two parts, a cross-sectional survey conducted prior to the pandemic and a cross-sectional survey carried out during the pandemic, referred to as Study 1a and 1b respectively. Online surveys were used to quantitatively explore whether users of online groups experience health-related benefits or costs through the extent to which they identify with their online groups, in line with the SIAH (Haslam et al., 2018). Study 1a aimed to explore whether identification with an online group was associated with higher satisfaction with life and social support and associated with lower loneliness. The study also formed the basis of a second survey (Study 1b), as Study 1a was re-released with the inclusion of questions relating to the COVID-19 pandemic to form Study 1b, as it was felt it would be important to investigate the impact of the COVID-19 pandemic on online group membership and loneliness during this period due to the increase in online communication (Nguyen et al., 2020; Ofcom, 2021) and increased risk of experiencing loneliness (Bu et al., 2020).

The chapter will initially discuss Study 1a and following this, Study 1b will be discussed. For each of the studies, the rationale, the research hypotheses, and an overview of the method will be outlined. The findings from the data analysis

conducted will be outlined (these include correlations, regressions, and mediations) for each study, and finally the conclusions will be discussed.

Study 1a

Study 1a Rationale

The SIAH hypothesises that identification with a group satisfies psychological needs, such as a sense of belonging, and a meaningful existence, which in turn improves well-being (Greenaway et al., 2016). Accordingly, a group can act as a 'Social Cure' when group membership affords a positive sense of social identity, as it subsequently has a positive impact on health (Haslam et al., 2018). While this has been demonstrated within in-person groups (Bowe et al., 2020; Haslam et al., 2008; Muldoon et al., 2019), there has been limited exploration as to whether these processes occur in online groups (Daynes-Kearney & Gallagher, 2024; Draper & Dingle, 2021; Finn et al. 2023).

Within these initial studies, the findings have suggested differences between identification online and in-person, such as identification with the online group to be significantly lower than group identification within the in-person group, with psychological needs satisfaction lower for online groups than in-person groups (Draper & Dingle, 2021). However, the findings have also demonstrated a sense of shared identity developing online, with this linked to lower anxiety, loneliness and depression, and higher well-being, self-esteem and self-efficacy reported (Finn et al., 2023). Further, a shared sense of connection and support in an online group helped with feelings of loneliness and isolation, suggesting Social Cure processes operating within an online group setting (Daynes-Kearney & Gallagher, 2024). While these initial studies provided support for Social Cure principles within an online group, the

findings also demonstrated differences in online and in-person group membership, highlighting the need for further exploration of the SIAH within an online context to understand these potential differences. However, while each of these previous studies has researched a specific online group, the present study would be the first to explore a range of online group memberships. Furthermore, previous research within the SIAH has investigated groups as either online or offline and has yet to consider how groups can exist within both spaces, and how online and offline groups occur together to form social networks (Schrock, 2016), and so it would be important to explore this to contribute to the SIAH literature. Therefore, exploring the role of social identities in a variety of online groups, and the impact this has on mental health, well-being and the experience of loneliness for young adults within the current study, would be an important contribution to the SIAH literature.

Within this exploration of online group membership and to address RQ1, the survey included key variables from the SIAH literature: social support; multiple group membership; group-type diversity; and contact, with the rationale for their inclusion outlined below. As outlined in Chapter 4, it was felt appropriate to explore in this initial quantitative study as these variables have been well-defined and quantitatively researched within the SIAH literature for offline group membership (Creswell & Plano Clark, 2018).

As demonstrated in Chapters 2 and 3, social support is an important psychological resource provided through group membership which can be protective against loneliness (Haslam et al., 2022; McNamara et al., 2021; Pineda et al., 2022). Furthermore, the SIA argues that a sense of identification with other group members encourages the provision of social support between members and openness to accept social support, perceiving the support to be more effective (Haslam et al., 2004;

Haslam et al., 2005; Haslam et al., 2012). However, it has been suggested that online support may not be perceived to be as effective as offline support for improving well-being (Trepte et al., 2013), which can contribute to loneliness (Nowland et al., 2018). In the present study, it is important to explore the social support provided and received within online group memberships, as social support may be a key variable effecting loneliness, health, and well-being, with social support provided and received through identification with the online group, as posited by the SIAH for offline group membership (Haslam et al., 2018).

Another key aspect of the SIAH to explore within the present study is the concept that multiple group membership provides a cumulative effect on health and well-being (Iyer et al., 2009; van Dick et al., 2023). This is especially important during times of significant life change, such that if one group is lost, multiple avenues of support and resources remain through the maintenance of other group memberships (Charles et al., 2023; Haslam et al., 2008). Therefore, the present study aimed to explore whether multiple online group memberships produced a similar cumulative effect on health, well-being and loneliness to that provided by multiple offline group memberships.

Developed from the concept of multiple group membership, group-type diversity is a new idea within the SIAH literature that argues that there may be a difference between belonging to multiple groups and belonging to multiple different types of groups (Charles et al., 2023). While multiple groups can offer access to resources such as social support, belonging to multiple different types of groups may impact loneliness through encouraging problem solving to address perceived social threats (Charles et al., 2023). Therefore, group-type diversity will be explored in relation to online group memberships, as it could be beneficial to explore whether it is

the additive effect of multiple online group memberships, or the diversity of the types of online group memberships young adults belong to, that may impact loneliness, health and well-being.

Within the SIA literature, it has been suggested that it is the identification with the group, as opposed to contact with the group, that elicits health benefits (Sani et al., 2012). Higher social contact, such as the frequency of interaction with a group, has been associated with higher life satisfaction; however, group identification has a greater contribution to higher satisfaction with life than contact with the group (Wakefield et al., 2017). Within the cyberpsychology literature, engagement with the online group has been an important variable to consider and there has previously been a binary distinction between 'active' and 'passive' social internet use, with 'active' users engaging in behaviours such as messaging others, posting, and commenting, and 'passive' users observing others (Kaye et al., 2024). These different types of interactions have been linked to different effects on well-being, with 'active' use associated with increased social capital and connectedness, and 'passive' use associated with negative social comparisons (Verduyn et al., 2022). Social capital may be defined as a network encouraging reciprocity between members that encourages community empowerment (Putnam, 2000) and online connectedness may be defined as a sense of belonging and closeness derived from an online group (Grieve et al., 2013). However, there has been criticism that the two categories are too broad to properly understand the behaviours and motivations of types of interaction and inconsistent results regarding the impact of 'active' and 'passive' use and well-being (Kaye et al., 2024). It has been suggested that increased social internet use has been associated with increased loneliness (Twenge et al., 2019), but also that frequent social interaction online was associated with engaging in in-person relationships that were

regarded as being of higher quality (Nowland et al., 2018). The complex, and often contradictory, relationship between social internet use and well-being indicates it is how social media is used and who it is being used by that impacts well-being and loneliness, and there is a need to further explore the role of different psychological mechanisms to understand this relationship (Fardghassemi & Joffe, 2021; Kross et al., 2021). Therefore, it would be of importance to explore the role of identification with the online group in relation to frequency of contact with the group, to explore whether one may inform the other in this initial study exploring online group membership and the impact on health. The application of the SIAH within this thesis could aid in understanding these previous conflicting findings, as while the frequency of contact with the online group may be important for well-being, this relationship might be explained through identification with the online group.

As such, this chapter will explore the following research question:

RQ1: Does online group membership impact the mental health, well-being and experience of loneliness of young adults aged 18-24?

Through the exploration of this question, the following hypotheses were tested:

H1.1: Identification with online groups will be associated with higher reported levels of well-being, higher reported levels of social support received, higher reported levels of social support provided, and lower reported levels of loneliness.

H1.2: The relationship between identification with online groups and well-being will be mediated through increased social support provided and social support received, and decreased loneliness. Please refer to Figure 5.1 for the proposed model.

H1.3: Online group identification predicts well-being to a greater extent than contact with the online group.

H1.4: Greater group-type diversity will be associated with higher reported levels of well-being and lower reported levels of loneliness.

Figure 5.1. Proposed mediation model exploring the relationship between identification with the online group, social support, loneliness, and satisfaction with life
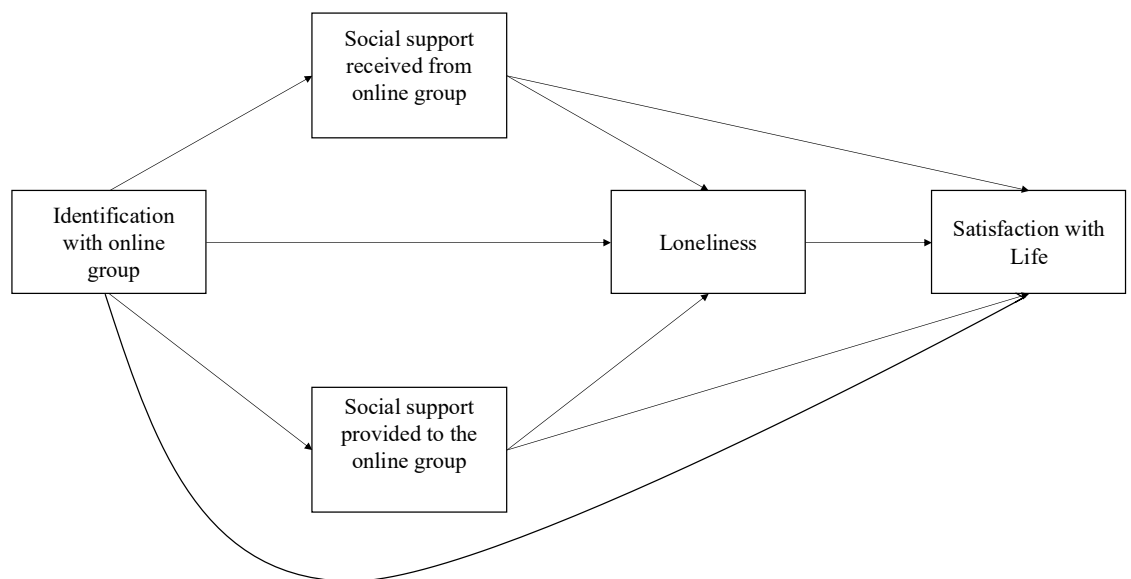
Method

As outlined in Chapter 2, 9.8% of young people living in the UK prior to the COVID-19 pandemic, reported experiencing loneliness often (ONS, 2018), with young people being more likely to report experiencing loneliness during the COVID-19 pandemic (ONS, 2020), with young adults being 27% more likely to report experiencing loneliness than older adults (Marquez et al., 2023). Despite this, research into loneliness has primarily focused on older adults and so research into young people experiencing loneliness has been limited (Goodfellow et al., 2022). As such, this research aimed to recruit participants aged between 18-24 years old, living in the UK, who belonged to at least one online group.

Design

An online, cross-sectional survey was chosen for use in Study 1a, collecting data relating to online group characteristics and psychological variables. An online survey was chosen to allow for features such as greater reachability of participants, timeliness in accessing participants, design functions and convenience for participants (Evans & Mathur, 2005). The survey was created using Qualtrics, an online survey platform. Qualtrics offers the survey to be accessible both on mobile and PCs. The platform allows for the use of forced responses, which were utilised for the consent questions, meaning that people could not participate unless each item relating to consent was selected. This feature was also used to allow participants to create a unique identifier code. Following these two questions, participants were able to skip any question they did not wish to answer.

The survey was piloted in June 2019, with eight participants providing feedback. Overall, participants were happy with the format and questions asked. From the feedback of one participant, the option of 'Family' was added as a response option for the type of online group.

Participants

Two hundred and seventeen responses were initially recorded within the survey, with a total of 48 being removed from the dataset due to factors such as ineligibility and missing data. To provide a profile of the cases removed due to missing data and reasons why, the number of cases removed at each level of completion of the survey will be outlined, with the Qualtrics completion percentage record included in brackets. Thirteen responses included the completion of the consent form (2-5%), 1 response completed the consent form and created a unique identifier code (7%), 12

responses also selected 'YES' to the screening question about whether they were a member of any online groups (9%), 1 response entered group names (10%), 1 response completed the demographics questions (21%), and 5 responses also completed one of the well-being measures (26%). To provide a profile of the cases removed due to ineligibility and reasons why, the number of cases removed will be outlined. 3 respondents selected 'NO' for a screening question, indicating they were not a member of any online groups, with this then ending the survey, and so their cases were deleted. When checking for whether any participants had completed the survey more than once, it was found one participant had through a repeated unique identifier code (UIC). In their initial response, they had selected 'no' for whether they were a member of any online groups, and the survey logic dictated that the survey would end. This participant then went on to complete the survey in full. When looking at the time stamps of each of the survey responses for this participant, it was assumed that they may have accidently selected 'no' and did not expect the survey to end, as they then went on the complete the survey. Therefore, their initial response was deleted, and their second response included. Age was also an eligibility criterion for participation in the study. Unfortunately, it was not included as a screening question and instead included in the demographics section. As such, 11 participants completed the survey to varying degrees, but were removed due to being over the age limit. Study 1a had an overall response rate of 77.9%.

The final sample consisted of 169 participants, with 143 (84.6%) females and 23 (13.6%) males. Participants ages ranged from 18-24, with a mean age of 19.78. Ninety-six (56.8%) reported being single, 72 (42.6%) reported being in a relationship, and 1 (0.6%) reported being married, as such, these were recoded into 'not in a relationship' (96, 56.8%) and 'in a relationship (73, 43.2%). One hundred and thirty-

nine (82.2%) participants reported having A Levels as the highest qualification held, with this recoded into 'school/college' level qualifications (149, 88.2%). Twelve (7.1%) held 'degree/work' level qualifications, and 5 (3%) held 'postgraduate' level qualifications. One hundred and twenty-two (72.2%) reported being white and 134 (79.3%) reported being a student.

A convenience sample was recruited using adverts detailing study information, which were placed around the campus of Nottingham Trent University (NTU) using posters on noticeboards and leaflets, and online, using the Psychology SONA system. Online adverts were also shared on social media (Twitter, Facebook, Reddit) and websites aiding in participant recruitment (Callforparticipants).

Incentives have previously been commonly used within survey research (Singer, 2002) and were used as a method of attempting to increase the response rate in the present research. Incentives, particularly monetary incentives, have been associated with increased response rates (Singer, 2002). Furthermore, the use of lotteries as incentives within online surveys has been popular, allowing for the cost of using incentives to be lower, regardless of the number of participants (Singer, 2002). However, there is concern within the literature and ethics surrounding appropriateness of using incentives. It has been raised that the use of incentives may be coercive in certain situations, such as when used to recruit vulnerable populations (Singer & Bossarte, 2006). In the present research, while the topic of loneliness can cause emotional discomfort, it is not believed that it would have caused significant distress, and so the use of incentives was deemed appropriate. Additionally, in each study presented within the thesis, participants were made aware of the use of incentives in the participant information sheet, prior to taking part, and also made aware that

withdrawing from the study at any point would not affect their entry into the prize draw or any SONA credits received.

In Study 1, participants were entered into a prize draw for the chance to win one of five £20 Amazon vouchers (for both Study 1a and 1b). If they had chosen to be entered into the prize draw, participants were allocated a number and the winners chosen using a random number generator. Alternatively, participants could be allocated 2 SONA credits upon their completion of the survey, if they were a Psychology student at NTU.

Procedure and materials

Favourable ethical review was obtained from NTU, Schools of Business, Law and Social Sciences Research Ethics Committee (no.2019/177 (amendment to 2019/96)) and the study followed the ethical guidelines outlined by the British Psychological Society (BPS, 2021). Initially within the survey, a participant information sheet and consent form were viewed to obtain fully informed consent prior to taking part. Participants did not have to answer any questions they did not wish to answer. Within the participant information sheet, participants were informed that their participation was voluntary and could withdraw at any point during the survey and up until 01/09/2019 and their data would not be used. If they were to withdraw following this date, their data may have been used in the analysis; however, their data would have been removed from the central dataset. At the end of the survey, participants received a debrief form which included the contact details of the researcher and the director of studies. It also provided the contact information for a charity that participants could get in touch with to discuss any issues that may arise after the survey. Please see Appendix I-IV.

The survey was created using Qualtrics and took approximately 20 minutes to complete. Data collection took place between August 2019 to March 2020.

The items included in the survey are listed below:

UIC and screening question - Participants were initially asked to create a UIC to facilitate data withdrawal requests. A screening question followed, as participants had to belong to at least one online group to participate. If 'YES' was selected, indicating the participant did belong to at least one online group, the survey proceeded, if 'NO' was selected, the survey immediately ended, with the webpage showing the debrief form.

Group Listings – The multiple group listings task, adapted from Haslam et al. (2008) combined the definition of a group used by Haslam et al. (2008) and the definition of an online group, as outlined by Howard and Magee (2013). The question read 'We would now like to ask you to list four online groups that you belong to. An online group may consist of family, friends, a work team, sports club, community group, etc. An online group may be defined as three or more individuals, communicating mainly online, through mediums such as instant messaging, forums or video chats. You do not have to interact with these groups solely online, for example a family group chat or an online support group that also interacts offline.' The decision to list four groups rather than six, as in the original, was made in an attempt to reduce participant attrition, given the number of questions relating to each group. This provided a measure of number of online group memberships, and acted as a prompt for each of the online group measures. Furthermore, this allowed participants to choose the groups to report, allowing them to choose the online groups most important to them and then link the group to the single-item identification

measure (Postmes et al., 2013), as recommended by van Dick et al. (2023) and as used by Foran et al. (2021). Participants were then asked to respond to the same set of questions for up to four online groups.

Demographics - Demographic information, including gender, age, ethnicity, employment status, highest qualification held and relationship status, were also collected.

Satisfaction with Life Scale - The Diener et al. (1985) satisfaction with life scale is a scale of global cognitive judgement about life and was used to measure well-being. The scale had five items measuring satisfaction with life, e.g. ''In most ways my life is close to ideal'. It had seven response options, ranging from '1 – Strongly Disagree' to '7 – Strongly Agree', with 'Prefer not to answer' added as an option. The overall sum was calculated for the total score, with a higher score indicating higher well-being, ranging from a minimum of 5 (low satisfaction) to 35 (high satisfaction) (Diener et al., 1985). The internal consistency of this measure was .87 in the current study, with the inclusion of this measure also supported by similar psychometric properties established using this measure in the SIAH literature (Haslam et al., 2018).

UCLA Loneliness Scale (3-ILS) - The 3-ILS (Hughes et al., 2004) was used as a short scale for measuring loneliness, as this is considered appropriate for large surveys and has acceptable reliability (Hughes et al., 2004), with an internal consistency of .79 in the current study. The scale had three items (e.g. 'How often do you feel that you lack companionship?') and was measured on a three-point likert scale of '1 – Hardly ever' to '3 – Often'. The overall sum was calculated for the total score, with a higher score indicating higher levels of reported loneliness. 'Prefer not to answer' was added as an option.

Psychological distress - The K6 (Kessler et al., 2002) measures the psychological distress experienced over the last 30 days and is considered easy to use and validated (Easton et al., 2017). There are six items in the scale, which included items such as 'During the last 30 days, about how often did you feel hopeless?'. Responses were measured on a *5-point likert scale and i*tems were summed to create the total score. However, when creating the measure in the survey on Qualtrics, the first response option of 'All the time' was missed. Instead, it read from '1 – most of the time', to '4 – none of the time. Due to this mistake when creating the measure in Qualtrics, this measure was excluded from the analysis of Study 1a but this issue was corrected for the release of the survey in Study 1b and included in that analysis.

Group Platform – When exploring the online group medium, participants were asked to report which platform hosted each of their online groups. The options were developed from response options included in Pew Research Center (2018) research, which was used as it provided a comprehensive list of social media platforms at the time and it had been previously reported that young adults used a variety of platforms frequently (Pew Research Center, 2018; Ofcom, 2021). The options were expanded to include other online groups outside of social media platforms as well as open response options, and included 'Facebook', 'Instagram', 'Snapchat', 'WhatsApp', 'Twitter', 'YouTube', 'LinkedIn', 'Instant messaging – open response', 'Forum', 'Online support group', 'Video chat', 'Voice calls', 'Other – open response'. This was to explore which online groups were used most within the age group recruited.

Group Type - The purpose of the online group was reported, to understand the types of online groups participants belonged to. The response options were revised from relationship categories developed by Buglass et al. (2016), Binder et al. (2012) and McCarty et al. (2001). The responses included 'Family' (which was added based

off the piloting feedback), 'Friends', 'Local interest/community', 'Identity/relationships', 'Spiritual/religious', 'Food', 'Funny', 'Buy and sell', 'School/education', 'Games', 'Businesses', 'Support', 'Health and fitness', 'Hobbies/leisure', 'Professional', 'Parenting', 'News/politics', 'Travel', 'Science/technology', 'Arts/culture', 'Style', 'Sport', 'Other – open response', and 'Prefer not to answer'. From this, the variable of Group-type Diversity (Charles et al., 2023) was created. Participants received a score of zero if they belonged to only a single type of group (for example, two groups reported to be 'Friends'), to indicate no group-type diversity. Participants would score for every group-type different to the first group-type reported (for example, a response of belonging to 'friends', 'games', 'friends', and 'sport', would create a score of two for group-type diversity). As participants were asked questions relating to up to four online groups, participants could receive a score of between 0-3. Due to missing data, if participants had initially listed more groups than they answered questions about, the name of the group was compared against the above listings of group type and coded accordingly, which happened for 6 participants.

Duration of membership - Participants were asked about the duration of which they had been a member of the online group to explore usage. The free text responses were converted to numerical years for the analysis.

Frequency of contact – This scale, developed by Buglass et al. (2017), was included to measure the frequency of contact with members of each of the online groups. The response options ranged from 'Never' to 'Daily' (scored 1-5), with 'Prefer not to answer' added as an option, with a higher score indicating a greater level of communication with their online groups.

Interaction - The type of interaction participants had with each of the online groups was also reported, exploring the typical form of online interaction participants had, through the response options of 'I send messages to specific group members', 'I comment on posts made by group members', 'I post content to the group', 'I observe social news from the group', 'I observe updates from the group', and 'Prefer not to answer'.

Percentage of group activities which are online or offline - This question explored whether, and the extent to which, participants interacted with members of the online group offline and was developed by Kan et al. (2018). The percentage of activities with the group that were online, versus face-to-face, was measured on a sliding scale, ranging from '0 – online only' to '100 – face-to-face only'.

Social Support Scales - A measure of the social support provided to the online group and a measure of the social support received from the online group was included in the survey. The measures, created by Haslam et al. (2005), considers the four aspects of social support: emotional support, companionship, instrumental support, and informational support (Haslam et al., 2018). The measure of support received had an internal consistency of .91 in the current study, with the measure of support provided having an internal consistency of .92, with existing SIAH literature demonstrating its psychometric properties, supporting its inclusion in the current study (Haslam et al., 2018). Responses were measured on a seven-point likert scale, from '1 – Not at all', to '7 – Definitely), with 'Prefer not to answer' added as an option. A mean of the four social support scores, for both the social support provided and the social support received, for each group was calculated. The sum of the group averages was then divided by the number of groups participants reported being a member of, to provide an overall score for social support provided and social support received.

Group identification - The use of the single item measure of group identification (Postmes et al., 2013) is appropriate given the length of the survey and the single item measure has been found to be valid and reliable (Haslam et al., 2018). Participants were asked 'I identify with members of this online group', and responded on a seven-point likert scale from '1 – Not at all' to '7 – Agree completely', and 'Prefer not to answer' was added as an option.

Multiple group memberships - A binary identification score for each group participants reported being a member of was created from the *group identification* measure. Participants received a 0 (indicating they did not identify with the online group) if they scored below 5 on the measure. Participants received a 1 (indicating they identified with the online group) if they scored 5 or more on the measure (Sani et al., 2015a; 2015b). This was summed to create a multiple group memberships score, indicating the number of groups participants identified with, as opposed to the number of groups participants reported being a member of.

Statistical analysis information

Power analysis - When considering the appropriate sample size needed to power the statistical analysis, Fritz and MacKinnon (2007) suggested a sample size of N=118 would be appropriate for medium effect, partially mediated model (Baron & Kenny, 1986), when using an alpha of .05 and a power of .80, for the proposed parallel-serial mediation to explore identification with the salient online group, social support received, social support provided, loneliness, and satisfaction with life. This would suggest that appropriate power was found within the study, as the sample consisted of 169 participants.

Type 1 errors - Type 1 errors occur when the null hypothesis has been rejected, when instead it should be accepted, with this indicating there to be a difference between groups when there is not a difference between groups (Pallant, 2020). The risk of Type 1 error can be reduced through use of appropriate power, and this can be affected by sample size, effect size and alpha size (Pallant, 2020). Due to the number of relationships that will be explored within the present analysis, the possibility of Type 1 errors needs to be considered. When conducting exploratory analysis, it has been argued that there can be an unknown inflation of the alpha level through increased testing, also known as the familywise error rate, thereby affecting the p-value (Rubin, 2017). However, it has also been argued that the alpha level does not need to be adjusted to account for this, as the risk is distributed across the hypotheses tested (Rubin, 2017). Furthermore, adjusting the alpha has been associated with p-hacking, where researchers run a variety of test but only report the significant findings (Rubin, 2017). While a number of relationships will be explored in the present analysis, all findings will be reported, justifying the use of *p*<.05. The effect sizes in the current analysis were guided by Cohen's *d* (1988), as to determine the strength of a relationship, as it is considered to be a standard benchmark (Sommet et al., 2023). In addition, parametric statistics can be more powerful than non-parametric statistics, but this is dependent on whether the assumptions needed for the parametric statistic are met (Pallant, 2020).

Assumptions - The data was checked for outliers, missing data, and assumptions of normality, prior to the analysis being carried out.

The final dataset consisted of 169 participants, and from these responses, 10 participants had missing data relating to one item from a variable which was replaced with the mean of the other responses. Using mean imputation as a technique to

manage missing data may distort the distribution of the variable and underestimate the variance; however, as this was done for less than 10% of the data, the limitation of this method may not be applicable (Lodder, 2013). If participants had more than one item from a variable missing, it was considered missing data and imputation was not used.

When checking assumptions of normality, histograms were used to examine whether the variables were normally distributed (Pallant, 2020). Age was non-normally distributed, with a skewness of .892 (SE = .188) and kurtosis of .257 (SE = .375). Gender was non-normally distributed, with a skewness of -2.112 (SE = .188) and kurtosis of 2.488 (SE = .375). When explored further through histograms, the data was skewed by 143 participants being female. 50 participants were aged 19, with the sample positively skewed to a younger sample, within the 18-24 age range. When considering age and gender in relation to loneliness, it has previously been found that young men are more likely to report hardly ever feeling lonely, whereas young women are more likely to report feeling lonely some of the time, with 18-year-olds more likely to report feeling lonely often (ONS, 2018). Therefore, age and gender were control variables within each of the analyses.

Missing Values Analysis was carried out in SPSS, which demonstrated 86 participants had at least one missing value of a variable. Questions relating to the fourth online group had the greatest number of missing values, with the most common pattern for missing data including all items relating to group four. It has been argued that the pattern of missing data is important to consider, as it can impact generalisability (Fox-Wasylyshyn & El-Masri, 2005). When exploring the results of Little's MCAR test, the value was significant, x^2 (2580) = 2718.03, $p<.029$, indicating the data was not missing completely at random. Consequently, if more than one item from a variable missing, it was considered missing data and imputation was not used.

Pairwise deletion was selected when running the analyses, as to exclude cases only if needed for the analysis (Pallant, 2020).

Results

In order to investigate the hypotheses outlined earlier in the chapter, descriptive statistics, partial correlations, and hierarchical regression were carried out, using SPSS (version 29; IBM Corp, 2023). Following this, mediation analysis was carried out using PROCESS macro (version 4.3.1; Hayes, 2022).

The descriptive statistics and relationships between the participant-level variables, for example the predictor variable of group identification with participants 'salient' online group and the outcome variable of satisfaction with life, will initially be explored, with the aim of addressing the following hypotheses:

H1.1: Identification with online groups will be associated with higher reported levels of well-being, higher reported levels of social support received, higher reported levels of social support provided, and lower reported levels of loneliness.

H1.2: The relationship between group identification with online groups and well-being will be mediated through increased social support provided and social support received, and decreased loneliness.

H1.3: Online group identification predicts well-being to a greater extent than contact with the online group.

The descriptive statistics and group-level data will then be explored, providing a descriptive overview of the types of online groups participants reported being a member of. This was included to provide descriptive background for addressing H1.4:

Greater group-type diversity will be associated with higher reported levels of well-being and lower reported levels of loneliness.

Changes to the planned analysis

The planned analysis had intended to explore whether multiple online group membership had an effect on mental health and well-being, as has previously been demonstrated within offline groups within the SIAH literature (Haslam et al., 2018). However, due to missing data (see p.85) it was unfeasible to include multiple online group membership as a variable in the analysis, as had been planned originally. While the majority of the sample reported being a member of more than one online group, as participants progressed with the survey there was a decline in responding to questions relating to groups two to four, compared with answering questions relating to group one. This was potentially a result of the length of the survey and participant survey fatigue (Deutskens et al., 2004). From the missing data totals, only 1 identification response was missing from the first listed online group, however this increased between the questions relating to each group, with 16 missing for group two, 34 missing for group 3 and 81 missing for group four. Due to this missing data, only the first online group participants listed by participants in the survey was used in the following analysis.

The first group listed by participants was considered to be their most salient online group, as it was felt important that participants had chosen to list this group prior to any others (Foran et al., 2021; van Dick et al., 2023). Supporting this notion, this group was reported as having the overall highest level of identification, when comparing the mean scores from all four groups each participant reported. When comparing the scores, 137 (81.1%) participants reported identifying with their first listed online group, 109 (64.5%) participants reported identifying with their second

listed online group, 82 (48.5%) participants reported identifying with their third listed online group, and 55 (32.5%) participants reported identifying with their fourth listed online group. An overview of the characteristics of the salient group will be provided below, prior to the salient group participant-level analysis.

Overview of the salient online group analysis

When considering the data for the salient group, the main platforms used were WhatsApp (n = 56), Facebook (n = 49), and Snapchat (n = 26), reflecting the varied platform use of this age group (Pew Research Center, 2018; Ofcom, 2021). Please see Table 5.1.

Table 5.1. Frequency of group platform for the salient group

Group Platform	Frequency
WhatsApp	56
Facebook	49
Snapchat	26
Instant messaging	23
Forum	5
Instagram	3
Voice calls	2
Other	2
Twitter	1
Online support group	1
Video chat	1

The type of online groups participants reported being a member of for the salient group were explored (Table 5.2), with the main online groups reported being family (n = 63), friends (n = 50), and school/education (n = 11).

Table 5.2. Frequency of group type for the salient group

Group Type	Frequency
Family	63
Friends	50
School/Education	11
Sport	10
Other	9

Hobbies/Leisure	5
Local Interest/Community	3
Businesses	3
News/Politics	2
Identity/Relationships	2
Health and Fitness	2
Games	1
Support	1
Funny	1
Professional	1
Food	1
Arts/Culture	1
Travel	0
Style	0
Parenting	0
Spiritual/Religion	0
Prefer not to say	0

The duration of group membership ranged from less than a year (n = 18) to 11 years (n = 1), with an average of 2.54 years of membership (SD = 2.09).

When considering the percentage of activities with the salient groups that were online, 10 (5.9%) of participants felt their activities with the salient group were considered to be solely online groups (0% offline), with 2 (1.2%) of the groups considered to be solely offline (100% offline). The mean percentage of activities with the salient online group being online versus face-to-face was 49.89% (SD = 27.55), indicating participants felt their activities with the salient online group were only slightly more online activities than offline activities, reflective of the online-offline continuum (boyd & Ellison, 2007; Reich et al., 2012). This is interesting when considered together with the types of groups participants reported as their online groups, as family was most frequently reported. This would suggest that for this sample, the 'family' group may have become a group that has slightly more interaction online.

94 participants reported communicating online daily with members of their salient online group, followed by communicating weekly (n = 52), and monthly (n = 19).

The main form of interaction with the salient online group reported by participants was sending messages to specific group members (n = 62), followed by posting content to the group (n = 35), and observing updates from the group (n = 29).

Overview of the participant-level analysis

The following section will explore the participant-level data, providing a descriptive overview of the well-being measures included in the survey and the variables associated with the salient-group. The descriptive statistics suggested participants were slightly satisfied with life (Diener et al., 1985), perceived a moderate level of support from their online group (both provided and received), and that participants did identify with the salient online group, as the cut off for identifying with the group was a score of 5 and above (Sani et al., 2015a). Please see Table 5.3.

Table 5.3. Descriptive statistics for the participant-level variables

Variable (possible range)	Mean	Standard deviation
1. Loneliness (3-9)	6.15	1.77
2. Satisfaction with life (5-35)	22.53	6.93
3. Social support received from the salient online group (1-7)	5.16	1.50
4. Social support provided to the salient online group (1-7)	5.35	1.44
5. Identification with the salient online group (1-7)	5.83	1.44

Correlation Analysis

Partial correlations were carried out to explore the relationships between variables and to inform whether further analysis was justified. Table 5.4 shows the

partial correlations of each of the main variables relating to the salient online group, controlling for age and gender. There was no association between identification with the salient online group and loneliness, controlling for age and gender (r(159) = -.13, p = .09), suggesting no direct relationship between identification with the online group and loneliness. There was a positive partial correlation between identification with the salient online group and satisfaction with life (r(159) = .17, p = .03), with a small effect size (Cohen, 1988), suggesting the greater identification with the salient online group, the higher the satisfaction with life. There was a positive partial correlation between identification with the salient online group and the social support received from that group (r(159) = .71, p<.001), with a large effect size (Cohen, 1988). This would indicate the greater the identification with the salient online group, the more participants perceived social support received from the group and a strong relationship between the two variables. There was a positive partial correlation between identification with the salient online group and the social support provided to that group (r(159) = .62, p<.001), with a large effect size (Cohen, 1988), suggesting a strong relationship, with the greater the identification with the online group, the more participants perceived themselves to be providing social support to the group. There was a positive partial correlation between identification with the salient online group and the frequency of contact with that group (r(159) = .29, p<.001), with a small effect size (Cohen, 1988). This may indicate that the greater the identification with the online group, the greater the contact with the group. There was a positive partial correlation between the percentage of activities online-offline with the salient online group and the social support received from that group (r(157) = .22, p<.006), with a small effect size (Cohen, 1988), suggesting the greater the activities offline with the online group, the more participants perceived themselves to be receiving social support from the

group. There was a positive partial correlation between the percentage of activities online-offline with the salient online group and the social support provided to that group ($r(157) =$ .23, $p<.003$), with a small effect size (Cohen, 1988), suggesting the greater the activities offline with the online group, the more participants perceived themselves to be providing social support to the group. From these initial results, partial correlational support was found for H1.1.

Table 5.4. Partial correlations for the participant-level variables relating to the salient online group, controlling for age and gender

Variable	1.	2.	3.	4.	5.	6.	7
1. Loneliness	-						
2. Satisfaction with life	**-.38****	-					
3. Social support received from the salient online group	**-.16***	**.22***	-				
4. Social support provided to the salient online group	-.07	.11	**.79****	-			
5. Identification with the salient online group	-.13	**.17***	**.71****	**.62****	-		
6. Frequency of online contact with the salient online group	-.10	**.20***	**.29****	**.27****	**.29****	-	
7. Percentage of activities that are online-offline	-.11	.10	**.22***	**.23***	.09	.04	-

Note: * *p*< .05, ** *p*<.001

The results would indicate that lower perceived levels of loneliness were associated with higher levels of satisfaction with life and received social support. Greater satisfaction with life was associated with greater social support received, and with greater levels of contact with the salient online group.

In summary, identification with the salient online group was partially correlated with all the main variables, excluding loneliness. These findings provided partial correlational support for H1.1, that identification with an online group was associated with higher reported levels of well-being, higher reported levels of social support received, and higher reported levels of social support provided. In relation to H1.3, both identification with the salient online group and contact with the salient online group were found to be associated with all the main variables, excluding loneliness. Identification with the salient online group and contact with the salient online group were also correlated, suggesting a potential reciprocal relationship between identification and contact with the salient online group.

Hierarchical multiple regression

Hierarchical multiple regression was conducted to explore the extent to which identification with an online group predicts well-being, to explore H1.1.

While the initial partial correlation suggested no direct link between identification with an online group and loneliness, the other variables explored suggested potential associations between the variables. Hierarchical multiple regression allows for each variable to be entered as a predictor to explore participants' well-being further.

SWL was the outcome variable, with the control variables of age and gender entered at Step 1. Identification with the salient online group was entered at Step 2,

loneliness, social support provided to the salient online group, and social support received from the salient online group at Step 3. Control variables explained 3.2% of the variance in SWL, total variance explained by the model as a whole was 20.3%, $F(6,156) = 6.62$, $p<.001$. Identification with an online group explained an additional 2.9% of the variance, $\Delta R^2 = .03$, F change $(3,159) = 3.47$, $p<.027$, and the social support variables and loneliness explained a further 14.2% of the variance, after controlling for age and gender, $\Delta R^2 = .14$, F change $(6,156) = 6.62$, $p<.001$. In the final model, only loneliness was a statistically significant predictor of SWL (sr = -.33, $p<.001$). As such, lower levels of loneliness predicted greater SWL. Please see Table 5.5.

Table 5.5. Hierarchical multiple regression exploring whether identification with the salient online group, loneliness, and social support predicts SWL, controlling for age and gender

| | Satisfaction with life | | |
	B	SE	β
Step 1			
Constant	29.06	7.69	
Age	-.57	.36	-.12
Gender	2.59	1.56	.13
		$(R^2 = .03)$	
Step 2			
Constant	24.58	7.86	
Age	-.54	.36	-.12
Gender	2.00	1.56	.10
Identification with the salient online group	.84	.38	**.17***
		$(R^2 = .06; \Delta R^2 = .03^*)$	
Step 3			
Constant	34.87	7.71	
Age	-.56	.33	-.12
Gender	1.83	1.46	.09
Identification with the salient online group	.18	.50	.04
Loneliness	-1.32	.29	**-.34***
Social support received from the salient online group	1.15	.62	.25

Social support provided to the salient online group	-.66	.58	-.14
		$(R^2 = .20; \Delta R^2 = .14^{***})$	

Note: *p<.05; **p<.01; ***p<.001

Another hierarchical multiple regression was conducted to explore the extent to which identification with an online group or contact with the online group predicts well-being, to explore H1.3.

Initial partial correlations suggested positive relationships between identification with the salient online group, contact with the group, and well-being. As such, hierarchical multiple regression allows for each variable to be entered as a predictor to explore the unique contribution to participant's well-being.

SWL was the outcome variable, with control variables of age and gender entered at Step 1. Identification with the salient group and frequency of contact with the salient online group were entered at Step 2. Control variables explained 3.2% of the variance in SWL, total variance explained by the model as a whole was 8.5%, $F_{(4, 158)} = 3.66$, p=.007. Identification with an online group and contact with the online group explained an additional 5.3% of the variance, after controlling for age and gender, $\Delta R^2 = .053$, F change $(2,158) = 4.55$, p<.012. In the final model, only contact with the online group was statistically significant with SWL (identification with the salient online group (sr=.12, p=.120) and contact with the salient online group (sr = .15, p=.046)). This finding was unexpected, as it has previously been argued that group identification predicts greater well-being more than the frequency of contact with the group in an offline setting (Sani et al., 2012), therefore it had been predicted that identification with the online group would be associated with higher reported

SWL, rather than greater contact with the online group (Sani et al., 2012). Please see Table 5.6.

Table 5.6. Hierarchical multiple regression exploring whether identification and contact with the group predicts SWL, controlling for age and gender

		Satisfaction with life	
	B	SE	β
Step 1			
Constant	29.06	7.69	
Age	-.57	.36	-.12
Gender	2.59	1.56	.13
		$(R^2 = .03)$	
Step 2			
Constant	15.94	8.90	
Age	-.43	.36	-.09
Gender	2.55	1.57	.13
Identification with the salient online group	.61	.39	.17
Frequency of contact with the salient online group	1.53	.76	**.16***
		$(R^2 = .09; \Delta R^2 = .05^*)$	

Note: *$p<.05$; **$p<.01$; ***$p<.001$

In summary, two hierarchical regressions were carried out to further explore H1.1 and H1.3. Having lower levels of loneliness predicted having higher levels of SWL and greater contact with the salient online group was found to be a significant predictor of SWL; however, neither H1.1 or H1.3 was supported. As identification with the salient online group initially partially correlated with each of the variables, except loneliness, it may be that a parallel-serial mediation could explain the potential relationship between identification with the salient online group, loneliness, and SWL through the exploration of indirect effects, to explore H1.2.

Parallel-serial mediation

Mediation analysis is used to explore the process through which a predictor (X) may influence an outcome variable (Y) through the direct path, while investigating

the indirect path of the mediator (M) to explore how X influences Y (Hayes, 2022). Traditionally, the causal steps approach (Baron & Kenny, 1986) proposed that in order to explore the effect of M on the relationship between X and Y, X and Y should have an established relationship, suggesting that if there is no established relationship there cannot be a mediated relationship. However, it has been argued that total effect of X on Y should not stop the exploration of the effect of M, as this would miss more complex interactions (Hayes, 2022; Preacher & Hayes, 2004). While there was an initial partial correlation between identification with the salient online group (X) and SWL (Y), when explored through hierarchical multiple regression this relationship was non-significant. As such, it is important to explore the indirect effect through potential mediators, exploring the impact of the psychological resources the online group may provide. Thus, mediation analysis was used to investigate H1.2.

A parallel-serial mediation analysis was conducted to test the prediction that identification with the salient online group would predict SWL through the parallel mediators of support provided by the salient group and support received from the salient group and the serial mediator of loneliness. Model 80 in version 4.3.1 of Hayes' PROCESS macro was used (Hayes, 2022) and the analysis involved bootstrapping with 5000 resamples, with 95% lower and upper confidence intervals. Age and gender were included as control variables.

- o **Identification with the salient online group was a positive predictor of social support received (coeff = .77, SE = .06, t = 13.12, p= .0000, LLCI = .66, ULCI = .89).**
- o **Identification with the salient online group was a positive predictor of social support provided (coeff = .66, SE = .06, t = 10.56, p= .0000, LLCI = .54, ULCI = .79).**

o   Identification with the salient online group did not predict loneliness (coeff = -.05, SE = .15, t = -.33, p= .7425, LLCI = -.34, ULCI = .25).

o   Identification with the salient online group did not predict SWL (coeff = -.37, SE = .53, t = -.69, p= .4910, LLCI = -1.42, ULCI = .68).

o   Social support received did not predict loneliness (coeff = -.31, SE = .17, t = -1.77, p= .0806, LLCI = -.65, ULCI = .04).

o   **Social support received was a positive predictor of SWL (coeff = 1.39, SE = .63, t = 2.22, p= .0282, LLCI = .15, ULCI = 2.63).**

o   Social support provided did not predict loneliness (coeff = .17, SE = .16, t = 1.02, p= .3086, LLCI = -.16, ULCI = .49).

o   Social support provided did not predict SWL (coeff = -.43, SE = .58, t = -.73, p= .4643, LLCI = -1.58, ULCI = .73).

o   **Loneliness was a negative predictor of SWL (coeff = -1.31, SE = .29, t = -4.55, p= .0000, LLCI = -1.88, ULCI = -.74).**

o   **The indirect effect of identification with the salient online group on SWL through social support received was significant (*effect* = 1.08, BootSE = .54, BootLLCI = .08, BootULCI = 2.20).**

o   The indirect effect of identification with the salient online group on SWL through social support provided was not significant (*effect* = -.28, BootSE = .38, BootLLCI = -1.10, BootULCI = .41).

o   The indirect effect of identification with the salient online group on SWL through loneliness was not significant (*effect* = .06, BootSE = .21, BootLLCI = -.34, BootULCI = .51).

- o **The indirect effect of identification with the salient online group on SWL through social support received and loneliness was significant (*effect* = .31, BootSE = .18, BootLLCI = .01, BootULCI = .72).**

- o The indirect effect of identification with the salient online group on SWL through social support provided and loneliness was not significant (*effect* = -.14, BootSE = .12, BootLLCI = -.42, BootULCI = .08).

Therefore, an indirect relationship between greater identification with the salient online group and higher SWL, through greater social support received from the salient online group and lower loneliness, was shown, suggesting partial support for H1.2. This indirect effect was significant despite the non-significant path between support received and loneliness. Unexpectedly, both identification with the salient online group and the social support provided to the salient online group were not significant predictors of either of the well-being variables (loneliness and SWL). The total effect of identification with the salient online group on SWL was not significant (*effect* = .65, SE = .39, t = 1.68, p= .0957, LLCI = -.12, ULCI = 1.42). Please refer to Figure 5.2 for the model.

Figure 5.2. Mediation model of hypothesised model (H1.2). On the *i* path, the total effect is reported, with the direct effect reported in the brackets. The solid lines denote significant associations and the dashed lines non-significant associations. ***p<.001, *p<.05
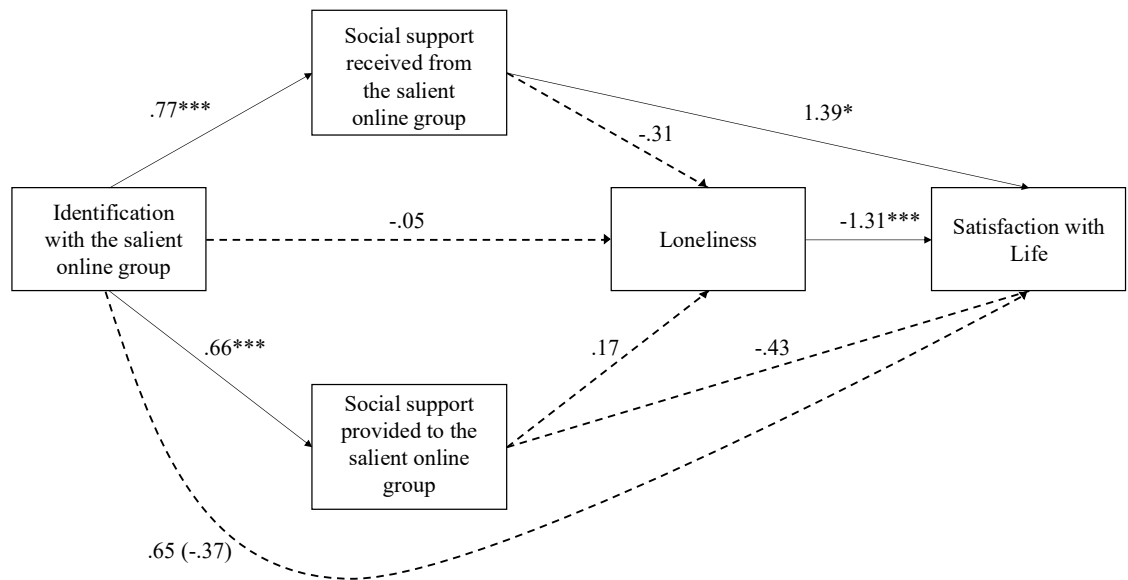
Social support received from the salient online group

Identification with the salient online group

Loneliness

Satisfaction with Life

Social support provided to the salient online group

.77***

-.31

1.39*

-.05

-1.31***

.66***

.17

-.43

.65 (-.37)

In summary, a significant relationship between identification with the salient online group and SWL was found, through social support received from the salient online group and loneliness, partially supporting H1.2. Greater identification with the salient online group was a positive predictor of higher levels of social support received from the salient online group, which was a negative predictor of loneliness, which was a negative predictor of SWL. While the total effect of identification with the salient online group and SWL was non-significant, the results suggest an indirect-only mediation (Hayes, 2022).

Overview of the group-level analysis

The following section will explore the group-level data, providing a descriptive overview of the types of online groups participants reported being a member of. 11 (6.5%) participants reported being a member of one online group (out of a possible 4), 17 (10.1%) reported being a member of two online groups, 50 (29.6%) reported being a member of three online groups, and 91 (53.8%) participants who reported being a member of four online groups. It was found that 29 (17.2%) of

participants identified with one online group, 54 (32%) identified with two online groups, 58 (34.3%) identified with three online groups, and 18 (10.7%) identified with four groups, with 10 (5.9%) reporting no identifications with their online groups. Participants reported identifying with an average of 2 (2.27) of their reported online groups.

A total of 546 groups were reported by the 169 participants. Across all groups, 159 of the groups were on WhatsApp, 149 groups were on Facebook, and 114 were on Snapchat.

Across all groups reported, 199 of the groups were friendship groups, 72 were school/education groups, and 63 were family groups (please see Table 5.7).

Table 5.7. Frequency of online group type

Group Type	Frequency
Friends	199
School/Education	72
Family	63
Other	53
Sport	31
Local Interest/Community	23
Professional	19
Hobbies/Leisure	16
Identity/Relationships	15
Parenting	9
Health and Fitness	8
Funny	7
Games	6
Businesses	6
Support	3
Spiritual/Religion	3
Food	2
News/Politics	2
Arts/Culture	1
Travel	1
Prefer not to say	1

The duration of group membership ranged from less than a year (n = 73) to 11 years (n = 1), with an average of 2.27 years of membership (SD = 1.88).

When considering the percentage of activities with the groups that were online, 30 (4.4%) of the groups reported were considered to be solely online groups (0% offline), with 9 (1.3%) of the groups considered to be solely offline (100% offline). The mean percentage of activities with the groups was 49.02% (SD = 27.6), indicating participants felt the groups reported within the survey were almost equal in terms of activities being online and offline, with only slightly more online activities.

211 participants reported communicating online weekly with members of their online groups, followed by 207 communicating daily, and 87 reported communicating monthly with an online group.

178 participants reported their main form of interaction with their online groups to be sending messages to specific group members, followed by 136 participants reporting observing updates from the group, and 108 participants reporting posting content to the group.

Descriptive statistics were calculated for the group-type diversity variable, with a mean score of 1.73 (SD = .89) reported (out of a potential 3), meaning that participants reported belonging to different types of online groups (e.g. a friendship and an educational group).

Correlation Analysis

Partial correlations were carried out to investigate whether belonging to multiple different types of online groups would influence well-being and loneliness, with the aim of addressing H1.4: Greater group-type diversity will be associated with higher reported levels of well-being and lower reported levels of loneliness. Table 5.8 shows the partial correlations between group diversity and loneliness and well-being, controlling for age and gender. There was no association between group-type diversity

and loneliness, controlling for age and gender (r(159) = -.094, p = .237), suggesting no direct relationship between group-type diversity and loneliness. There was no association between group-type diversity and satisfaction with life (r(159) = .116, p = .143), suggesting no direct relationship between group-type diversity and satisfaction with life.

Table 5.8. Partial correlations for each of the main variables relating to group-type diversity, controlling for age and gender

Variable	1	2	3
1. Group-type diversity	-		
2. Loneliness	-.094	-	
3. Satisfaction with life	.116	**-.378**	-

$**p<.001$

In summary, there was no association between group-type diversity within online group membership and loneliness, nor with satisfaction with life. Therefore, H1.4 was not supported.

Discussion

The main aim of Study 1a was to explore whether Social Cure principles applied to online group membership, investigating the relationship between identification with a salient online group, loneliness, and well-being, to address RQ1. Within H1.1, it was predicted that identification with a salient online group would be positively associated with satisfaction with life and social support, while being negatively associated with loneliness. This was in line with previous research suggesting that it is identification with the group that is associated with improved health and well-being (Haslam et al., 2022). Furthermore, identification with the group provides psychological resources to draw on, such as social support, which in turn improve well-being (Haslam et al., 2005).

The results indicated that identification with a salient online group was present and associated with greater satisfaction with life, higher levels of social support received, higher levels of social support provided, and greater frequency of contact with the salient online group, providing initial correlational support for H1.1, suggesting Social Cure principles may be applicable within an online group setting. However, identification with a salient online group was not associated with loneliness. Lower loneliness was associated with higher social support received from the online group. Previous research has suggested that there may be a relationship between social internet use and loneliness, as it may be used to develop a greater sense of social support (Nowland et al., 2018), with the present findings suggesting correlational support for the relationship between loneliness and online social support.

However, when explored through hierarchical multiple regression, only loneliness was a significant predictor of SWL, thus not supporting H1.1. When explored further through a parallel-serial mediation, the model demonstrated an indirect-only mediation effect, suggesting greater identification with the salient online group predicted greater social support received from the salient online group, which predicted lower reported levels of loneliness, which predicted higher SWL, indicating support for H1.2. This finding supported those of previous research, suggesting greater social support is associated with lower loneliness (Pineda et al., 2022). Offline group memberships have been found to provide psychological resources, such as social support, to draw upon which in turn are protective for well-being (Greenaway et al., 2016), with the indirect only mediation providing initial indication of online group identification providing such resources which impact well-being. It was unexpected that social support provided was not a predictor within the mediation, as previous research has demonstrated an increased likelihood of offering support to

those considered to be in-group members (Levine et al., 2005), and it was interesting that this relationship was found through the social support received from the salient online group, which may be linked to the notion that group members are more receptive to support from other members of the group and may perceive the support to be more effective (Haslam et al., 2004; Haslam et al., 2005; Haslam et al., 2012). This finding indicates that Social Cure processes may also be seen within online groups (Haslam et al., 2018). This is important for three reasons; firstly, it expands the understanding of SIAH within online groups, secondly, initial research into comparing the support received online to that received offline suggested that only offline support was associated with well-being (Trepte et al., 2013), with the findings of the present study indicating that identification with the online group is a significant predictor of greater social support received from the online group, and finally, this understanding of Social Cure processes may explain why online support can be effective or ineffective, and so being able to apply this to online group membership may help in supporting those who access online groups for support (Daynes-Kearney & Gallagher, 2024).

When exploring H1.3, contact with the salient online group was a significant predictor of SWL, whereas identification with the salient online group was not significantly associated with SWL. As such, H1.3 was not supported. It had been expected that identification would be associated with SWL, as the SIAH posits that it is the identification with the group, as opposed to contact with the group, that provides a sense of meaning and belonging, which supports positive well-being (Sani et al., 2012). One explanation of this finding is that there may be a reciprocal relationship between contact and identification with an online group, with the initial correlational findings suggesting a positive association between contact and identification. This

may suggest that frequent contact with online groups could potentially be necessary to develop a sense of shared identity with the online group. Interestingly, frequency of contact was not significantly associated with loneliness as has been found in some previous studies (Twenge et al., 2019), with the findings from the present study suggesting greater contact with an online group may benefit SWL. When this finding is considered alongside the main types of groups participants reported belonging to (family, friends, school/education), it could be that greater contact online with these groups may facilitate the maintenance of valued group memberships, which has been associated with greater well-being (Iyer et al., 2009).

The group-level data was included in the analysis to provide a descriptive background for the exploration of H1.4. When considering the group-level variables, the varied platform use found is similar to that found in other research (Ofcom, 2024), indicating that young adults use a variety of platforms. It was surprising that Facebook was the second most-used platform for the salient group, as Facebook use is usually lower in this age group compared to older age groups (Ofcom, 2024); however, this reflects the findings of Thomas et al. (2020). The finding in the present study could be due to young adults using Facebook to maintain connections with those older than themselves, or a sense of normative influence, in that the desire to maintain a Facebook account may be motivated by feeling as though everyone else has one (Kaye et al., 2024). This measure of platform use was initially included to narrow the focus of specific online groups in subsequent studies within the thesis; however, as both this study and previous finding suggest young adults use a variety of platforms online, it was felt that the platform should be left open for the following studies, to explore online group membership as experienced by young adults.

Finally, it was hypothesised that a greater number of group-types would be associated with higher SWL and lower loneliness (H1.4), as group-type diversity had previously been associated with well-being (Charles et al., 2023). Diversity of online group memberships was not significantly associated with SWL or loneliness, and so H1.4 was not supported. Further research would be appropriate to explore online group-type diversity and whether multiple online group memberships are associated with well-being, as previously found in offline groups (Charles et al., 2023; Iyer et al., 2009).

A limitation of this study was the amount of missing data, impacting on the ability to explore multiple group membership within an online context and the association with well-being as planned. This guided the decision to explore identification with the salient online group. In support of this, van Dick et al. (2023) highlighted that while the majority of research within the SIAH literature provides participants with a fixed list of groups to respond about, it was argued that it would be important for future research to ask participants to list the groups they are a member of and combine this with the single item measure of identification (Postmes et al., 2013), as this would account for participants being able to list groups that are more important to them, rather than groups researchers select. Further supporting this, Foran et al. (2021) investigated participants affiliative identity through asking an open-ended question about the group which is of most importance to the participant, linking this with the four-item Group Identification Scale (Sani et al., 2015). The results of the study by Foran et al. (2021) demonstrated no significant direct effect between the participants reported affiliative identity and self-reported eating disorder symptoms; however, there was a significant indirect path through the mediators of social support and injunctive norms. While multiple online group membership could not be explored

in the current study, it will be important to explore multiple online group membership and the relationship between health and well-being in Study 2. When reflecting on the level of missing data within the study, it was decided that in Study 2, the number of online groups asked about will be reduced from 4 to 3, to attempt to reduce possible attrition during the survey. When considering the issue of participant ineligibility, the survey in the present study should have included the specific age range as response options and utilised the survey logic to end the survey if participants were not within the age range, rather than an open text response box. This change will be made in Study 2.

Another limitation of the study was the use of cross-sectional data. While it was considered appropriate for the exploratory nature of this first study, causal inferences cannot be made and it would be of importance to explore these relationships longitudinally, and so this will be addressed in Study 2.

Conclusion

In conclusion, the findings provide an initial insight into the relationship between identification with an online group and well-being, and the process through which members of online groups may gain psychological resources through the group and its effect on well-being. This study is one of the first to provide an initial insight into Social Cure processes working within online groups, demonstrating the role of social support received from an online group and the impact on loneliness and satisfaction with life through the indirect-only mediation, and highlighting that the SIAH could be applicable to online groups.

Changes made following Study 1a

The survey was revised and rereleased during the COVID-19 pandemic, to explore the impact of COVID-19 on the health, wellbeing and loneliness young adults living in the UK, and to investigate whether changes had occurred in methods of online communication, and subsequently online group identification, during the pandemic. Despite the issues with missing data in Study 1a, it was felt Study 1b should attempt to replicate Study 1a, with only the addition of questions relating to the pandemic. Subsequently, no changes were made to the original survey design of Study 1a; however, these issues were kept in mind for the design of Study 2. Questions were added to the Study 1b survey to explore feelings of connectedness during the pandemic, and use of technology during this time to maintain connections. The following demographic questions were added to the Study 1b survey to account for COVID-19 and were not included in the initial 1a survey:

Demographics – A question relating to where participants live was added to the demographics section, due to previously differing COVID restrictions across the UK. The main 12 areas across the UK were listed.

Previous year – This question explored whether participants had been at home or on site, either working or studying, over the past 12 months.

Socialising - This question explored whether participants were currently socialising with/without restrictions.

COVID-19 - This question examined whether participants had had COVID-19.

Connected - A measure of the extent to which participants felt they were able to stay connected to their groups during the pandemic. Responses were measured on

a seven-point likert scale, from '1 – Not at all', to '7 – Completely), with 'Prefer not to answer' as an additional option.

Technology - A measure of the extent to which participants felt they were able to use technology to stay connected to their groups during the pandemic. Responses were measured on a seven-point likert scale, from '1 – Not at all', to '7 – Completely), with 'Prefer not to answer' as an additional option.

Pandemic – An open response text box was added to explore the question "Is there anything you think we should know or understand better about your experiences of staying connected during this time?"

The following section will discuss the revised survey which formed Study 1b and the results of the study.

Study 1b

Study 1a provided initial insight into the impact of online group membership on the health, well-being and loneliness of young adults living in the UK, prior to the UK entering its first lockdown of the COVID-19 pandemic. The findings suggested some correlational support for identification with a salient online group being associated with higher satisfaction with life, higher levels of social support received, higher levels of social support provided, and greater frequency of contact with the online group. Furthermore, the parallel-serial mediation indicated that greater identification with a salient online group would predict greater SWL, through the indirect effect of greater social support received and lower loneliness.

As Study 1a suggested initial support for potential Social Cure processes within online group membership, it was thought that it would be important to consider the impact of the COVID-19 pandemic on these relationships, given the increase in

online social connectedness during this period and increased risk of experiencing loneliness (Bu et al., 2020). Study 1b was a replication and extension of Study 1a, to account for the pandemic. The current study intends to explore whether Social Cure principles apply to online group membership within the context of the COVID-19 pandemic. In addition to this, further analysis of the data collected within Study 1a will be presented alongside the results from Study 1b, allowing for an exploration of differences between a pre- and post-pandemic sample. The current study will amend RQ1 (explored in Study 1a), to consider the impact of COVID-19 and address the following:

RQ1: Does online group membership impact the mental health, well-being, and experience of loneliness of young adults aged 18-24 following the COVID-19 pandemic?

The sections following outline the rationale behind the study, a brief overview of the method, the data analysis conducted and finally the conclusions drawn.

Study 1b Rationale

Emerging research exploring the impact of lockdown during the COVID-19 pandemic on loneliness has suggested that young adults experienced an increased risk of loneliness during the pandemic (Bu et al., 2020; Lee et al., 2020). Furthermore, the loneliness experienced by 18-23 year olds during this time was associated with declining mental health (Lee et al., 2020). Study 1b aimed to recruit a new sample, considering the changes in online group memberships since pandemic. The survey was revised to include questions relating to the pandemic and rereleased to explore the impact of COVID-19 on young adults and their online group membership, allowing

also for a comparison of young adults online group memberships and well-being between the samples of Study 1a and 1b.

Prior to the pandemic, research into online social interactions had mixed findings in relation to the experience of loneliness (Fardghassemi & Joffe, 2021; Kross et al., 2021; Nowland et al., 2018). Many social interactions became online-based following the emergence of COVID-19 and the subsequent lockdowns and mandatory social distancing (Towner et al., 2022). However, initial research suggested that while depression increased, and happiness and social support received from peers decreased for young adults during this time, loneliness remained at similar levels to that prior to the pandemic, potentially due to the high reported levels of loneliness within this age group to begin with, and there was no association found between online social interactions and loneliness (Towner et al., 2022). Unexpectedly, feeling connected to others through online interactions was reported to decrease during the pandemic, and so it was argued further research was needed to explore the ways in which connectedness may be derived from online interaction, as it may be that higher well-being is associated with online connectedness through it improving the quality of the connection (Towner et al., 2022). This would be in line with the SIAH (Haslam et al., 2018), as it would suggest that being able to maintain an existing social identity through online connection would be beneficial to well-being.

As initially planned in Study 1a, the study had aimed to explore multiple group membership within an online context. In Study 1a, the first group was considered within the analysis as it could be argued that the first group listed may have been important to the participant (Foran et al., 2021; van Dick et al., 2023), which was reflected in these groups having higher identification scores than the other groups listed and the main types of groups reported being family, friendship, and educational-

based groups. It was hoped that by rereleasing the survey, multiple online group membership may be explored in the Study 1b sample, as the Social Cure literature demonstrates a positive association between a greater number of identifications and greater mental and physical health (Iyer et al., 2009, Sani et al., 2015a). Therefore, it was considered important to explore whether this is applicable within the context of online groups. However, Study 1b encountered similar issues as Study 1a in relation to increasing levels of missing data as participants progressed with the survey (please see the results section for further details). As such, only the salient online group was explored within the current analysis.

Study 1b will explore the following research question:

RQ1: Does online group membership impact the mental health, well-being and experience of loneliness of young adults aged 18-24 following the COVID-19 pandemic?

Through the exploration of this question, the hypotheses from Study 1a were investigated in Study 1b, with the following hypothesis added to explore the impact of the COVID-19 pandemic:

H1.5: Is there a significant difference between the well-being scores of participants in Study 1a (prior to the pandemic) and Study 1b (during the pandemic).

Method

Design

The survey used in Study 1a was revised and re-released, with additional questions relating to the COVID-19 pandemic. Questions were added to explore participants experiences of keeping in touch with their social groups during the

pandemic, and their use of technology within the pandemic. These changes were made to explore the role of the pandemic in people's social groups and how technology has been used during this time.

Participants

Two hundred and thirty-five responses were initially recorded within the survey, with a total of 56 being removed from the dataset due to factors such as ineligibility and missing data. To provide a profile of the cases removed due to missing data and reasons why, the number of cases removed at each level of completion of the survey will be outlined, with the Qualtrics completion percentage record included in brackets. Thirteen responses viewed but did not complete the consent form (2%), 7 responses included the completion of the consent form (5%), 8 responses completed the consent form and created a unique identifier code and selected 'YES' they were a member of an online group in a screening question (8%), 3 responses completed the consent form and created a unique identifier code and selected 'YES' they were a member of an online group in the first screening question and named an online group in the group listings task (9%), 1 response completed the demographics questions (20%), 1 response completed the demographics questions and the added questions relating to COVID-19 (29%), and 2 responses also completed one of the well-being measures (34%). To provide a profile of the cases removed due to ineligibility and reasons why, the number of cases removed will be outlined. 5 respondents selected 'NO' for a screening question, indicating they were not a member of any online groups, with this then ending the survey, and so their cases were deleted. Age was also an eligibility criterion for participation in the study (recruiting those aged 18-24). While this was highlighted within the recruitment materials, 16 participants completed the

survey to varying degrees, but had to be removed due to being over the age limit. Study 1b had an overall response rate of 76.2%.

The final sample consisted of 179 participants, 40 (22.3%) were male, 137 (76.5%) were female, and 2 (1.1%) preferred not to say. The ages of participants ranged from 18 to 24 years old, with a mean age of 20.27 (SD = .931). Ninety-four reported being single (52.5%), 80 reported being in a relationship (44.7%), and 1 reported being married (0.6%), as such, these were recoded into 'not in a relationship' (94, 52.5%) and 'in a relationship (81, 45.3%). One hundred and forty-six (81.6%) of the sample reported having A Levels as the highest qualification held, with this recoded into 'school/college' level qualifications (158, 88.3%), 'degree/work' level qualifications (17, 9.5%), and 'postgraduate' level qualifications (3, 1.7%). One hundred and twenty-four (69.3%) participants reported being white. One hundred and thirty-two (73.7%) participants reported being a student. As in Study 1a, all participants were aged between 18-24 and living in the UK.

A convenience sample was recruited using adverts detailing study information. The Psychology SONA system was used to advertise the study to Psychology students of NTU. Online adverts were also shared on social media (Twitter, Facebook, Reddit) and websites aiding in participant recruitment (e.g. callforparticipants).

In Study 1, participants were entered into a prize draw for the chance to win one of five £20 Amazon vouchers (for both Study 1a and 1b). If they had chosen to be entered into the prize draw, participants were allocated a number and the winners chosen using a random number generator. Alternatively, participants could be allocated 2 SONA credits upon their completion of the survey, if they were a Psychology student at NTU.

Procedure and materials

Favourable ethical review was obtained from NTU, Schools of Business, Law and Social Sciences Research Ethics Committee (no. 2022/45 (amendment to 2021/264, 2021/247, 2021/171, 2019/173) and the study followed the ethical guidelines outlined by the BPS (BPS, 2021). Initially within the survey, a participant information sheet and consent form were viewed to obtain fully informed consent prior to taking part. Participants did not have to answer any questions they did not wish to answer. Within the participant information sheet, participants were informed that their participation was voluntary and could withdraw at any point during the survey and up until 01/02/2022 and their data would not be used. If they were to withdraw following this date, their data may have been used in the analysis, however their data would have been removed from the central dataset. At the end of the survey, participants received a debrief form which included the contact details of the researcher and the director of studies. It also provided the contact information for a charity that participants could get in touch with to discuss any issues that may arise after the interview.

The study consisted of a cross-sectional online survey, which was estimated to take approximately 20 minutes to complete. It was created using Qualtrics, and the data collection took place between end of July 2021 to mid-November 2021. For context, on 19th July 2021, the UK Government removed all legal restrictions which remained on social contact, and re-opening, in England, encouraging the public to make informed decisions in relation to managing risk (Cabinet Office, 2022). For example, limits on the number of social contacts, the legal requirement to wear a face mask, and requiring COVID-status certification, were all removed. During this time, 80 (44.7%) participants reported being from the East Midlands, and 128 (71.5%) of participants reported having greater restrictions than other areas, and 91 (50.8%)

participants reported not having had COVID-19. 99 (55.3%) participants reported socialising without restrictions (e.g. face mask), and 137 (76.5%) participants reported studying from home over the past year.

The online survey in Study 1b used the measures which were included in Study 1a (please refer to the methods section of Study 1a), with the corrected response options included for the psychological health measure (Kessler at al., 2002) and the addition of the following:

Demographics – A question relating to where participants live was added to the demographics section, due to previously differing COVID restrictions across the UK. The main 12 areas across the UK were listed.

Previous year – This question explored whether participants had been at home or on site, either working or studying, over the past 12 months.

Socialising - This question explored whether participants were currently socialising with/without restrictions.

COVID-19 - This question examined whether participants had had COVID-19.

Connected - A measure of the extent to which participants felt they were able to stay connected to their groups during the pandemic. Responses were measured on a seven-point likert scale, from '1 – Not at all', to '7 – Completely), with 'Prefer not to answer' as an additional option.

Technology - A measure of the extent to which participants felt they were able to use technology to stay connected to their groups during the pandemic. Responses were measured on a seven-point likert scale, from '1 – Not at all', to '7 – Completely), with 'Prefer not to answer' as an additional option.

Pandemic – An open response text box was added to explore the question "Is there anything you think we should know or understand better about your experiences of staying connected during this time?", which was developed from the open-ended questions included in the study by Jones et al. (2023).

Statistical analysis information

Power analysis - When considering the appropriate sample size needed to power the statistical analysis, Fritz and MacKinnon (2007) suggested a sample size of N=118 would be appropriate for medium effect, partially mediated model (Baron & Kenny, 1986), when using an alpha of .05 and a power of .80, for the proposed parallel-serial mediation to explore identification with the salient online group, social support received, social support provided, loneliness, and satisfaction with life. This would suggest that appropriate power was found within the study, as the total sample was 179 participants, with 170 participants included in the mediation analysis.

Assumptions - The data was checked for outliers, missing data, and assumptions of normality, prior to the analysis being carried out.

From the final data set of 179 responses, 10 participants had missing data relating to one item from a variable which was replaced with the mean of the other responses. Mean imputation was used as a technique to manage missing data, as was done in Study 1a (Lodder, 2013). If participants had more than one item from a variable missing, it was considered missing data and imputation was not used.

When checking assumptions of normality, histograms were used to examine whether the variables were normally distributed (Pallant, 2020). Age was non-normally distributed, with a skewness of .64 (SE = .18) and kurtosis of 1.86 (SE = .36). Gender was non-normally distributed, with a skewness of -1.3 (SE = .18) and

kurtosis of -.26 (SE = .36). When explored further through histograms, the data was skewed by 137 participants being female. The age of the sample had a positive kurtosis, with 93 participants clustered at the age of 20. Age and gender were added as control variables within each of the analyses.

Missing Values Analysis was carried out in SPSS, which demonstrated 100 participants had at least one missing value of a variable. As in Study 1a, questions relating to the fourth online group had the greatest number of missing values, with the most common pattern for missing data including all items relating to group four. Little's MCAR test was significant, x^2 (2873) = 2918.552, $p<.272$, indicating the data was missing completely at random (MCAR) and was dealt with using deletion and imputation techniques (Fox-Wasylyshyn & El-Masri, 2005).

Results

Descriptive statistics, partial correlations, and hierarchical regression were carried out to investigate the hypotheses outlined earlier in the chapter, using SPSS (version 29; IBM Corp, 2023). Following this mediation analysis was carried out, using PROCESS macro (version 4.3.1; Hayes, 2022).

The initial section will explore the relationships between the participant-level variables, including the predictor variables of identification with a salient online group and the outcome variable of satisfaction with life, with the aim of addressing H1.1, H1.2, and H1.3.

The descriptive statistics and group-level data will then be explored, providing a descriptive overview of the types of online groups participants reported being a member of, aiming to address H1.4.

A comparison of Study 1a and 1b samples will then be carried out, to explore the differences of online group membership and well-being in samples prior to the COVID-19 pandemic and following the pandemic, with the aim of addressing H1.5.

Finally, content analysis was carried out on the open text response to a question relating to the experience of the COVID-19 pandemic, with the aim of this providing further context to the quantitative results in addressing RQ1.

Changes to the planned analysis

As with Study 1a, there was a large drop-off in the response rate for the full completion of the survey, especially in relation to questions for groups two to four. From the missing data totals, there was no missing data in relation to the identification response from the first listed online group; however, this increased between the questions relating to each group, with 18 missing for group two, 47 missing for group three and 94 missing for group four. As such, this analysis only considered the 'salient' group, as done in Study 1a. The first group was considered to be the most salient online group, as this group was reported as having the overall highest level of identification, when comparing the mean scores from all four groups each participant reported. When comparing the scores, 147 (82.1%) participants reported identifying with their first listed online group, 111 (62%) participants reported identifying with their second listed online group, 83 (46.4%) participants reported identifying with their third listed online group, and 40 (22.3%) participants reported identifying with their fourth listed online group. An overview of the characteristics of the salient group will be provided below, prior to the salient group participant-level analysis.

Overview of the salient online group analysis

When considering the data for the salient group, the main platform used by the salient online group was explored (Table 5.9). While WhatsApp was the main platform reported (n = 84), as seen in Study 1a, Snapchat was reported more frequently than Facebook in Study 1b (n = 30 and n = 23 respectively). This may reflect participants potentially using online groups to maintain friendships during the COVID-19 pandemic, as opposed to maintaining connection with family as seen in Study 1a, as it has been reported that young adults moved to live with family at home when the pandemic began (Towner et al., 2022).

Table 5.9. Frequency of group platform for the salient group

Group Platform	Frequency
WhatsApp	84
Snapchat	30
Facebook	23
Other	11
Instant messaging	8
Instagram	5
Video chat	5
Voice calls	5
Forum	3
Online support group	1
Twitter	1

The type of online groups participants reported being a member of for the salient group were explored (Table 5.10), with the main online groups reported being family (n = 78) and friends (n = 49).

Table 5.10. Frequency of group type for the salient group

Group Type	Frequency
Family	78
Friends	49
Sport	9
School/Education	9
Games	7

Professional	6
Hobbies/Leisure	3
Local Interest/Community	3
Other	3
Spiritual/Religion	2
Businesses	2
Health and Fitness	2
News/Politics	1
Arts/Culture	1
Style	1
Parenting	1
Travel	0
Support	0
Food	0
Funny	0
Identity/Relationships	0
Prefer not to say	0

The duration of group membership ranged from less than a year (n = 7) to 21 years (n = 1), with an average of 3.6 years of membership (SD = 3.04).

When considering the percentage of activities with the salient groups that were online, 9 (5%) of participants felt their activities with the salient group were considered to be solely online groups (0% offline), with 3 (1.7%) of the groups considered to be solely offline (100% offline). The mean percentage of activities with the salient online group being online versus face-to-face was 50.12% (SD = 27.24), indicating participants felt their activities with the salient online group were almost equal online and offline activities, providing further support for the notion of online and offline connections overlapping (boyd & Ellison, 2007; Reich et al., 2012).

84 participants reported communicating online daily with members of their salient online group, followed by communicating weekly (n = 71), and monthly (n = 18).

The main form of interaction reported by participants was sending messages to specific group members (n = 61), followed by posting content to the group (n = 40), and observing updates from the group (n = 37).

Overview of the participant-level analysis

The following section will explore the participant-level data, providing a descriptive overview of the well-being measures included in the survey and the variables associated with the salient-group. Participants reported being slightly satisfied with life (Diener et al., 1985), perceiving a moderate level of support from their salient online group (both provided and received; Haslam et al., 2005), a moderate level of psychological distress (Prochaska et al., 2012; Stolk et al., 2014), and a moderate level of loneliness (Hughes et al., 2004). As in Study 1a, participants identified with the salient online group, with the cut off for identifying with the group being a score of 5 and above (Sani et al., 2015a). Participants had weekly contact with their online group (Buglass et al., 2017). The mean percentage of activities with the groups was 50.12% suggesting that participants considered the salient online group to have almost equal activities being online and offline (Kan et al., 2018). Please see Table 5.11.

Table 5.11. Descriptive statistics for the participant-level variables

Variable (possible range)	Mean	Standard deviation
1. Loneliness (3-9)	5.94	.14
2. Satisfaction with life (5-35)	22.56	.47
3. Psychological distress (0-24)	9.42	5.27
4. Social support received from the salient online group (1-7)	5.14	1.43
5. Social support provided to the salient online group (1-7)	5.29	1.44
6. Identification with the salient online group (1-7)	5.73	.11
7. Ability to stay connected to their groups during the pandemic (1-7)	4.94	1.42

8. Use of technology to stay connected during the pandemic (1-7)	6.27	.92
9. Frequency of online contact with the salient online group (1-5)	4.30	.82
10. Percentage of activities that are online-offline (0-100)	50.12	27.24

Correlation Analysis

Partial correlations were carried out to explore the relationships between variables and to inform whether further analysis was justified. Table 5.12 shows the partial correlations of each of the main variables, controlling for age, gender, use of technology and perceived ability to maintain connections to groups during the pandemic. These were controlled for due the variables being significantly skewed, while also ensuring the use of technology and perceived ability to maintain connections to groups during the pandemic had no influence on the relationships being investigated. There was a negative partial correlation between identification with the salient online group and loneliness, controlling for age, gender, connection and technology use ($r(169) = -.20$, $p = .008$), with a small effect size (Cohen, 1988), suggesting the greater identification with the online group, the lower the perceived loneliness. There was a positive partial correlation between identification with the salient online group and SWL ($r(169) = .16$, $p = .039$), with a small effect size (Cohen, 1988), suggesting the greater identification with the online group, the higher the SWL. There was no significant association between identification with the online group and psychological distress ($r(164) = -.13$, $p = .108$). There was a positive partial correlation between identification with the salient online group and the social support received from that group ($r(169) = .39$, $p < .001$), with a medium effect size (Cohen, 1988). This would indicate the greater the identification with the online group, the more

participants perceived social support received from the group. There was a positive partial correlation between identification with the salient online group and the social support provided to that group ($r(169) = $ .48, $p<.001$), with a medium effect size (Cohen, 1988), suggesting the greater the identification with the online group, the more participants perceived to be providing social support to the group. There was a positive partial correlation between identification with the salient online group and the frequency of contact with that group ($r(169) = .25$, $p=.001$), with a small effect size (Cohen, 1988). This may indicate that the greater the identification with the online group, the greater the contact with the group. There was a positive partial correlation between the percentage of activities online-offline with the salient online group and the social support provided to that group ($r(167) = $ .16, $p<.043$), with a small effect size (Cohen, 1988), suggesting the greater the activities being offline with the online group, the more participants perceived to be providing social support to the online group. From these initial results, partial correlational support was found for hypothesis 1.1.

Table 5.12. Partial correlations for the participant-level variables relating to the salient online group, controlling for age and gender

Variable	1.	2.	3.	4.	5.	6.	7	8
1. Loneliness	-							
2. Satisfaction with life	**-.43****	-						
3. Psychological distress	**.50****	**-45****	-					
4. Social support received from the salient online group	**-.22***	**.26****	-.13	-				
5. Social support provided to the salient online group	**-.15***	**.17***	-.07	**.59****	-			
6. Identification with the salient online group	**-.20***	**.16***	-.13	**.39****	**.48****	-		
7. Frequency of online contact with the salient online group	-.09	.06	.03	**.31****	**.40****	**.25****	-	
8. Percentage of activities that are online-offline	-.12	-.02	-.06	.11	**.16***	.11	.03	-

Note: * *p*< .05, ** *p*<.001

As there were no significant associations between psychological distress and the other main participant-level variables, psychological distress was not included in any of the further analyses in the participant-level section of the results.

In summary, identification with the salient online group was partially correlated with all the main variables, excluding psychological distress, providing partial correlational support for H1.1. Identification with an online group was associated with lower reported levels of loneliness, higher reported levels of well-being, higher reported levels of social support received, and higher reported levels of social support provided. In relation to H1.3, while identification with the salient online group was found to be associated with all of the main variables, contact with the online group was only associated with social support provided, social support received, and with identification with the salient online group, suggesting partial correlational support for H1.3.

Hierarchical multiple regression

Hierarchical multiple regression was conducted to explore the extent to which identification with a salient online group predicts well-being, to explore H1.1: Identification with online groups will be associated with higher reported levels of well-being, higher reported levels of social support received, higher reported levels of social support provided, and lower reported levels of loneliness.

SWL was the outcome variable and the control variables (age, gender, use of technology and perceived ability to stay connected with groups during the COVID-19 pandemic) were entered at Step 1. Identification with the salient online group was entered at Step 2, and loneliness, social support provided, and social support received at Step 3. Control variables explained 2.4% of the variance in SWL, total variance

explained by the model as a whole was 23.3%, $F(8, 166) = 6.29$, $p<.001$. Identification

with an online group explained an additional 2.4% of the variance, $\Delta R^2 = .02$, F change

$(5,169) = 1.71$, $p=.135$, and the social support variables and loneliness explained a

further 18.5% of the variance, after controlling for age, gender, use of technology and

perceived ability to stay connected to groups during the COVID-19 pandemic. In the

final model, only loneliness was statistically significant with SWL (sr = -.37, $p<.001$),

suggesting lower loneliness predicted higher SWL. Please see Table 5.13.

Table 5.13. Hierarchical multiple regression exploring whether identification with the

salient online group, loneliness, and social support predicts SWL, controlling for age,

gender, use of technology and perceived ability to stay connected with groups during

the COVID-19 pandemic

	Satisfaction with life		
	B	SE	β
Step 1			
Constant	25.58	11.44	
Age	-.39	.53	-.06
Gender	.96	1.17	.06
Use of technology	.06	.61	.01
Ability to stay connected	.57	.40	.13
	(R² = .02)		
Step 2			
Constant	22.77	11.41	
Age	-.38	.53	-.06
Gender	1.12	1.16	.07
Use of technology	-.12	.61	-.02
Ability to stay connected	.40	.40	.09
Identification with the salient online group	.75	.36	**.17***
	(R² = .05; ΔR² = .02*)		
Step 3			
Constant	35.36	10.72	
Age	-.51	.49	-.08
Gender	1.23	1.08	.08
Use of technology	-.29	.56	-.04
Ability to stay connected	.19	37	.04
Identification with the salient online group	.04	.38	.01
Loneliness	-1.37	.25	**-.40***

Social support received from the salient online group	.74	.40	.17
Social support provided to the salient online group	.06	.42	.01
		$(R^2 = .23; \Delta R^2 = .19^{***})$	

Another hierarchical multiple regression was conducted to explore the extent to which identification with an online group or contact with the online group predicts well-being, to explore H1.3: Online group identification predicts well-being to a greater extent than contact with the online group

Initial partial correlations suggested positive relationships between identification with the salient online group and well-being, and identification with the salient online group and contact. Hierarchical multiple regression allows for each variable to be entered as a predictor to explore the unique contribution to participant's well-being.

SWL was the dependent variable, with control variables of age, gender, use of technology and perceived ability to stay connected with groups during the COVID-19 pandemic entered at Step 1. Identification with the salient group and contact with the salient online group were entered at Step 2. Control variables explained 2.4% of the variance in SWL, total variance explained by the model as a whole was 4.9%, $F(6, 168) = 1.43$, $p=.206$. Identification with an online group and contact with the online group explained an additional 2.5% of the variance, after controlling for age, gender, use of technology and perceived ability to stay connected with groups during the COVID-19 pandemic. In the final model, none of the variables were significantly associated with SWL, with identification with the salient online group (sr=.15, $p=.055$)

and contact with the salient online group (sr = .02, *p*=.777) both non-significant. Please see Table 5.14.

Table 5.14. Hierarchical multiple regression exploring whether identification and contact with the group predicts SWL, controlling for age, gender, use of technology and perceived ability to stay connected with groups during the COVID-19 pandemic

	Satisfaction with life		
	B	SE	β
Step 1			
Constant	25.58	11.44	
Age	-.39	.53	-.06
Gender	.96	1.17	.06
Use of technology	.06	.61	.01
Ability to stay connected	.57	.40	.13
		$(R^2 = .02)$	
Step 2			
Constant	22.29	11.57	
Age	-.39	.53	-.07
Gender	1.13	1.16	.08
Use of technology	-.12	.61	-.02
Ability to stay connected	.40	.41	.09
Identification with the salient online group	.72	.37	.16
Frequency of contact with the salient online group	.17	.60	.02
		$(R^2 = .05; \Delta R^2 = .03)$	

In summary, two hierarchical regressions were carried out to further explore H1.1 and H1.3. Having lower levels of loneliness predicted having higher levels of SWL; however, neither identification with nor contact with the salient online group was found to be a significant predictor of SWL. Therefore, H1.1 and H1.3 were not supported. The relationship between identification with the salient online group and SWL will be explored further through mediation, exploring the indirect effects of mediators (Hayes, 2018).

Parallel-serial mediation

A parallel-serial mediation analysis was conducted to test the prediction that identification with the salient online group would predict SWL through the parallel mediators of support provided by the salient group and support received from the salient group and the serial mediator of loneliness. Model 80 in version 4.3.1 of Hayes' PROCESS macro was used (Hayes, 2023) and the analysis involved bootstrapping with 5000 resamples, with 95% lower and upper confidence intervals. Age, gender, use of technology and perceived ability to maintain connection with groups during the COVID-19 pandemic were included as control variables in the analysis.

- o **Identification with the salient online group was a positive predictor of social support received (coeff = .40, SE = .07, t = 5.44, *p*= .0000, LLCI = .25, ULCI = .54).**

- o **Identification with the salient online group was a positive predictor of social support provided (coeff = .46, SE = .07, t = 6.71, *p*= .0000, LLCI = .33, ULCI = .60).**

- o Identification with the salient online group did not predict loneliness (coeff = -.20, SE = .12, t = -1.71, p= .0887, LLCI = -.43, ULCI = .03).

- o Identification with the salient online group did not predict SWL (coeff = -.05, SE = .37, t = -.14, *p*= .8918, LLCI = -.79, ULCI = .69).

- o **Social support received was a negative predictor of loneliness (coeff = -.25, SE = .13, t = -1.99, *p* = .0481, LLCI = -.50, ULCI = -.00).**

- o Social support received did not predict SWL (coeff = .74, SE = .40, t = 1.83, *p* = .0684, LLCI = -.06, ULCI = 1.54).

- o Social support provided did not predict loneliness (coeff = .09, SE = .13, t = .68, *p* = .4986, LLCI = -.17, ULCI = .36).

- o Social support provided did not predict SWL (coeff = .03, SE = .42, t = .07, *p* = .9417, LLCI = -.81, ULCI = .87).

- o **Loneliness was a negative predictor of SWL (coeff = -1.36, SE = .25, t = -5.47, *p* = .0000, LLCI = -1.85, ULCI = -.87).**

- o **The indirect effect of identification with the salient online group on SWL through social support received was significant (*effect* = .30, BootSE = .17, BootLLCI = .02, BootULCI = .70).**

- o The indirect effect of identification with the salient online group on SWL through social support provided was not significant (*effect* = .01, BootSE = .19, BootLLCI = -.35, BootULCI = .41).

- o The indirect effect of identification with the salient online group on SWL through loneliness was not significant (*effect* = .27, BootSE = .19, BootLLCI = -.05, BootULCI = .72).

- o **The indirect effect of identification with the salient online group on SWL through social support received and loneliness was significant (*effect* = .13, BootSE = .07, BootLLCI = .00, BootULCI = .30).**

- o The indirect effect of identification with the salient online group on SWL through social support provided and loneliness was not significant (*effect* = -.06, BootSE = .09, BootLLCI = -.24, BootULCI = .11).

Therefore, an indirect relationship between greater identification with the salient online group and higher SWL, through greater social support received from the salient online group and lower loneliness, was shown, suggesting partial support for H1.2. The total effect of identification with the salient online group on SWL was not

significant (*effect* = .61, SE = .36, t = 1.71, *p*= .0892, LLCI = -.09, ULCI = 1.32). Please see Figure 5.3 for the model.

Figure 5.3. Mediation model of hypothesised model (H1.2). On the *i* path, the total effect is reported, with the direct effect reported in the brackets. ****p*<.001, **p*<.05
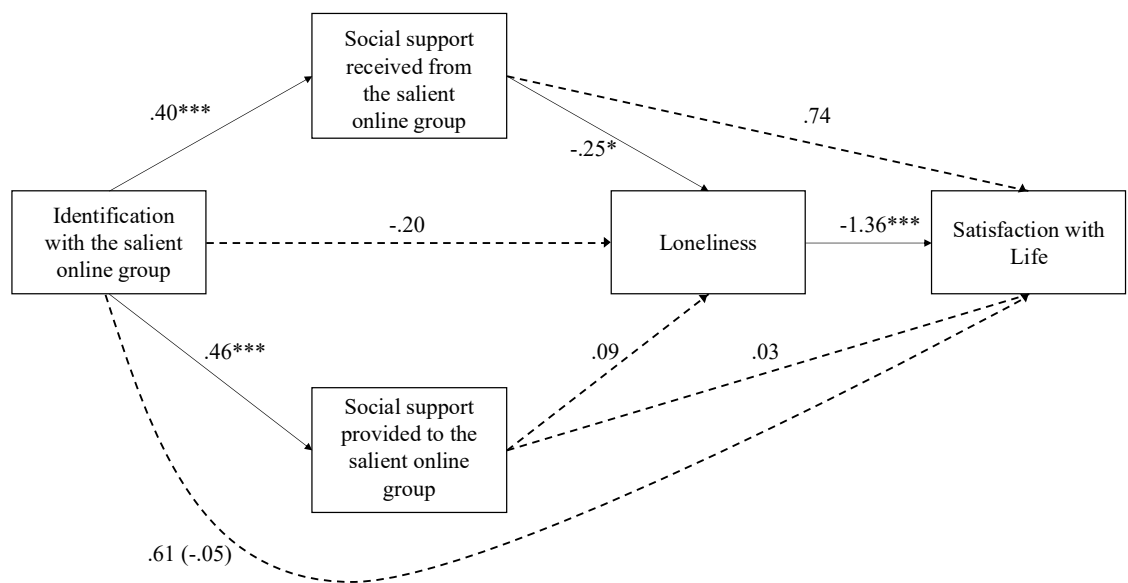
In summary, partially supporting H1.2, a significant relationship between identification with the salient online group and SWL was found, through social support received and loneliness. Higher identification with the salient online group was a positive predictor of higher levels of social support received, which was a negative predictor of loneliness, which was a negative predictor of SWL. While the total effect of identification with the salient online group and SWL was non-significant, the results suggest an indirect-only mediation (Hayes, 2018). This supported a finding from Study 1a, identification with an online group was positively associated with SWL, through the social support received and loneliness.

Overview of the group-level analysis

The following section will explore the group-level data, providing a descriptive overview of the types of online groups participants reported belonging to. 88 (49.2%) participants belonging to four online groups, 47 (26.3%) belonging to three online groups, 28 (15.6%) belonging to two online groups and 16 (8.9%) belonging to one online group. It was found that 42 (23.5%) of participants identified with one group, 53 (29.6%) identified with two groups, 52 (29.1%) identified with three groups, and 19 (10.6%) identified with four groups, with 13 (7.3%) reporting no identifications with their online groups. Participants reported identifying with an average of 2 (2.12) of their reported online groups.

A total of 557 groups were reported by the 179 participants. Across all groups, 198 of the groups were on WhatsApp, 150 groups were on Snapchat, and 95 were on Facebook.

The type of online groups participants reported being a member of were explored, with 190 friendship groups, 126 family groups and 67 school/education groups (Table 5.15).

Table 5.15. Frequency of online group type

Group Type	Frequency
Friends	190
Family	126
School/Education	67
Professional	31
Local Interest/Community	30
Sport	25
Hobbies/Leisure	17
Games	16
Other	15
Spiritual/Religion	8
Health and Fitness	6
Businesses	5
Funny	5
Identity/Relationships	2

Arts/Culture	2
News/Politics	1
Travel	1
Parenting	1
Support	0
Food	0
Prefer not to say	0

The duration of group membership ranged from less than a year (n = 29) to 21 years (n = 1; please note, this participant reported being 21 years old, and being a member of their 'family' group for 21 years; however, this number may not reflect their duration of online group membership with their family group). The average duration of group membership reported was 3.05 years (SD = 2.7).

When considering the percentage of activities with the groups that were online, 28 (3.9%) of the groups reported were considered to be solely online groups (0% offline), with 10 (1.4%) of the groups considered to be solely offline (100% offline). The mean percentage of activities with the groups was 48.92% (SD = 28.35), suggesting as in Study 1a participants felt the groups reported within the survey were almost equal in terms of activities being online and offline, with only slightly more online activities.

191 participants reported communicating online daily with members of their online groups, 235 communicating weekly, and 89 reported communicating monthly with an online group.

170 participants reported their main form of interaction with their online groups to be sending messages to specific group members, followed by 126 participants reporting their main form of interaction with their online groups to post content to the group, and 139 participants reporting their main form of interaction to be observing updates from the group.

Descriptive statistics were calculated for the group-type diversity variable, with a mean score of 1.72 (SD = .98) reported (out of a potential 3).

Correlation Analysis

Partial correlations were carried out to investigate whether belonging to multiple different types of online groups would influence well-being and loneliness, with the aim of addressing H1.4: Greater group-type diversity will be associated with higher reported levels of well-being and lower reported levels of loneliness. Table 5.16 shows the partial correlations between group diversity and loneliness and well-being, controlling for age, gender, use of technology and perceived ability to stay connected with groups during the COVID-19 pandemic. There was no association between group-type diversity and loneliness, controlling for age, gender, use of technology and perceived ability to stay connected with groups during the COVID-19 pandemic ($r(169) = -.01$, $p = .90$), suggesting no direct relationship between group-type diversity and loneliness. There was no association between group-type diversity and satisfaction with life ($r(169) = -.02$, $p = .814$), suggesting no direct relationship between group-type diversity and satisfaction with life. There was no association between group-type diversity and psychological distress ($r(164) = .03$, $p = .730$), suggesting no direct relationship between group-type diversity and satisfaction with life.

Table 5.16. Partial correlations for each of the main variables relating to group-type diversity, controlling for age and gender

Variable	1	2	3	4
1. Group-type diversity	-			
2. Loneliness	-.01	-		
3. Satisfaction with life	-.02	**-.43****	-	

| 4. Psychological distress | .03 | .50** | -.45** | - |

**p<.001

In summary, there was no association between group-type diversity and loneliness, nor with satisfaction with life. H1.4 was not supported.

Pre- and Post-pandemic Analysis

Study 1b also aimed to explore the differences in young adults online group memberships and their well-being as a result of the pandemic, comparing the results from Study 1a to those of Study 1b.

Assumptions - The data was checked for outliers, missing data, and assumptions of normality, prior to the analysis being carried out. When checking assumptions of normality, histograms were used to examine whether the variables were normally distributed (Pallant, 2020).

Loneliness was non-normally distributed, with a skewness of .006 (SE = .13) and kurtosis of -.90 (SE = .26). Satisfaction with Life was non-normally distributed, with a skewness of -.43 (SE = .13) and kurtosis of -.49 (SE = .26). Identification with the salient group was non-normally distributed, with a skewness of -1.23 (SE = .13) and kurtosis of 1.00 (SE = .26). Frequency of contact was non-normally distributed, with a skewness of -1.31 (SE = .13) and kurtosis of 2.08 (SE = .26). When checking the tests of normality, each of the variables had a significant Kolmogorov-Smirnov statistic, violating the assumptions of normality. Therefore, the non-parametric technique of a Mann-Whitney U test will be used to explore differences in young adults online group memberships and their well-being pre- and post-pandemic.

Mann-Whitney U tests – Mann-Whitney U tests were carried out to explore differences in the well-being scores of participants in Study 1a (prior to the pandemic) and Study 1b (during the pandemic), to explore H1.5.

A Mann-Whitney U test was conducted to compare the SWL scores for a sample of young adults prior to the pandemic and a sample of young adults during the pandemic. There was no significant difference for the pre-pandemic sample (Md = 24, n = 168) and the post-pandemic sample (Md = 23, n = 179; U = 14832, z = -.22, p = .827, r = .05).

A Mann-Whitney U test was conducted to compare the loneliness scores for a sample of young adults prior to the pandemic and a sample of young adults during the pandemic. There was no significant difference for the pre-pandemic sample (Md = 6, n = 168) and the post-pandemic sample (Md = 6, n = 177; U = 13939, z = -1.02, p = .310, r = .05).

A Mann-Whitney U test was conducted to compare the identification with the salient online group scores for a sample of young adults prior to the pandemic and a sample of young adults during the pandemic. There was no significant difference for the pre-pandemic sample (Md = 6, n = 168) and the post-pandemic sample (Md = 6, n = 179; U = 14214, z = -.92, p = .356, r = .05).

A Mann-Whitney U test was conducted to compare the contact with the salient online group scores for a sample of young adults prior to the pandemic and a sample of young adults during the pandemic. There was no significant difference for the pre-pandemic sample (Md = 5, n = 167) and the post-pandemic sample (Md = 4, n = 178; U = 13626, z = -1.48, p = .139, r = .08).

In summary, there were no significant differences found between the samples of Study 1a and 1b in relation to well-being and online group membership, with H1.5 not supported.

Content analysis

Content analysis was conducted to explore the responses to an open-ended question included in the survey, which asked "Is there anything you think we should know or understand better about your experiences of staying connected during this time?".

Qualitative Analysis Procedure: The responses from the open-ended questions were collected within the Qualtrics surveys and then compiled within a Microsoft Excel spreadsheet. 25 responses were included in the analysis, which was guided by an inductive approach (Elo & Kyngas, 2007), using the following procedure:

Familiarisation: The responses were collated within Microsoft Excel and the researcher reviewed the responses while making notes to understand the data.

Open coding and coding sheets: Codes were generated based on participants responses and each response was labelled with the corresponding codes.

Grouping: Codes were then grouped into similar categories to generate initial themes and categories were collapsed to incorporate similar subthemes.

Categorisation: Following the construction of initial themes, the dataset was revisited to ensure the themes fit with the data and reflected a pattern within the data. Microsoft Excel was used to re-order the initial codes to create a flow to the story related to the research question.

Abstraction: A description of what each theme captured in relation to the research question was written up and themes were discussed with the supervisory team.

Qualitative Analysis: Four themes were developed from these responses surrounding participants experiences of staying connected during the pandemic: (1) The pandemic created time for relationships; (2) Being online helped during the pandemic; (3) Online is normal; and (4) Issues with online communication. Please see Table 5.17 for the themes, subthemes, and exemplary quotes.

Table 5.17. Themes and subthemes developed from the content analysis, with quotes to illustrate

Theme	Sub theme	Exemplar quotes
The pandemic created time for relationships		More connected with others as everyone used social media more - more online groups for everything even groups created about covid in the community
Being online helped during the pandemic	Ease of communication online	Technology helped me stay in contact with my family and friends, if we didn't have it I wouldn't have been able to contact some of those who live further away
	Positive impact on mental health	More than ever I had the ability to use online groups and stay actively connected with them because for a period of time during lockdown, it was like my entire life had been moved onto the online platform. I have always been an active online group member, but during lockdown and self isolation, I was more active than I have ever been. In fact, I felt this online activity benefitted my wellbeing greatly because I relied on it to get the socialisation that I was unable to have due to COVID-19 restrictions.
Online is normal		The Dungeons and Dragons group has always been online, whereas the bridge group had to move online as a result of Covid-19
Issues with online communication	Practical issues	Made a lot of new friends in the pandemic but also struggled to maintain contact with others due to differences in usage of technology (they primarily used Playstation, whilst I was more and more regularly active on my computer)

	It's not the same as in-person	Allowed to stay connected but was not the same or to the same depth as in person interaction

The following sections will provide an overview of the four themes developed.

(1) The pandemic created time for relationships

Participants spoke of feeling as though they had more time to focus on their relationships during the pandemic. While there was limited in-person contact, being online meant that there was still the opportunity to connect, sometimes through the development of an online routine (such as through regular online quizzes) which contributed to a sense of normalcy. This helped with prioritising connection and developing their bonds. Feeling as though everyone was online together led to a sense of greater connectedness, with one participant outlining how more online groups formed as a result of the pandemic. Others spoke of how the pandemic meant that their connections to their online groups developed more, through the increased opportunity to socialise online, which was helpful when struggling with the pandemic.

(2) Being online helped during the pandemic

It was felt as though life had switched to being online as it was considered to be the only option for connection for some during the pandemic, and online connectedness was viewed as a helpful tool in facilitating communication. It was recognised to be an inclusive method of communication, allowing those who would find it difficult to socialise in-person, and those currently self-isolating, to remain involved. It also meant that physical distance was not a barrier to maintain connections with groups during the pandemic. As such, participants spoke of this helping them to feel less isolated and lonely.

(3) Online is normal

It was also raised that online group membership was a normal part of life prior to the pandemic, and this helped with adjusting to other groups 'moving' online because of lockdowns and distancing. However, one participant spoke of how one of their groups did not 'move' online, and so when restrictions eased, their circumstances had changed and could not access the group, highlighting a loss of support because of the group not being online.

(4) Issues with online communication

While online connectedness was considered to be a facilitator of communication during the pandemic, there were issues with this. Connecting online was important to participants, but it was viewed by some as incomparable to in-person, with some describing a feeling of 'distance' and a dislike of using online communication, thereby occasionally withdrawing. Further, using different platforms was highlighted to be a barrier to maintaining existing friendships, and technical difficulties, while not viewed as a barrier to communication, were considered to be an annoyance.

In relation to RQ1, the content analysis would suggest that young adults recognised the importance of social connection during the pandemic, and utilised online communication to address their social needs to maintain existing connections and help with their loneliness. While the pandemic provided some with time to focus on their social groups and develop these relationships, it was also felt that there was a limit to how much this could be achieved through online group membership, as it was considered to not equate to in-person interaction.

Discussion

The main aim of Study 1b was to further explore whether the SIAH could be applied to online group membership, investigating the relationship between identification with a salient online group, loneliness and well-being, following the COVID-19 pandemic. It also aimed to explore the impact of the pandemic on young adults online group memberships and well-being, comparing the Study 1a and 1b samples.

When considering the differences between a pre-pandemic and post-pandemic sample, H1.5 was not supported. It was unexpected that no significant differences were found between samples in terms of well-being measures and online group variables. However, the levels of reported loneliness by young adults in the UK were of concern prior to the pandemic (ONS, 2018), and it has previously been suggested that because of this, there may be a ceiling effect (Towner et al., 2022). Furthermore, qualitative studies have indicated that while young adults struggled with loneliness and mental health during lockdowns, the lockdowns were also viewed as an opportunity to improve awareness and self-management of mental health (McKinlay et al., 2022), and so this balance may be reflected in the results of the present study. This was also reflected in the findings from the content analysis, as prioritising connections online which helped with loneliness, but simultaneously participants struggled with isolation and online communication. Alternatively, it may be that the time at which the data for Study 1b was collected may explain these findings, as restrictions around socialising in-person had been removed just prior to data collection starting. The lifting of restrictions on socialising has been reported to be anxiety-inducing, in relation to fear of catching and spreading the virus and leaving the 'comfort' of lockdown when compared to 'real life' (McKinlay et al., 2022).

In relation to the Study 1b data, H1.1 predicted identification with a salient online group would be positively associated with satisfaction with life and social support, while being negatively associated with loneliness, which was supported through partial correlations. However, when investigated further through multiple hierarchical regression, H1.1 was not supported. Building on this, the direct effect of identification with the salient online group on SWL was not significant, which was unexpected considering the association between group identification and well-being in 'offline' samples (Greenaway et al., 2016; Haslam et al., 2018). However, H1.2 provided further insight into this relationship and was supported through an indirect-only mediation, with the parallel-serial mediation demonstrating identification with the salient online group predicted greater social support received and lower loneliness, which predicted higher SWL. This would suggest it is the social support gained through online group membership which effects well-being, which supports one of the findings of Study 1a and existing SIAH literature (Haslam et al., 2018).

Within the SIAH literature it has been argued that identification, as opposed to contact, with the group creates health benefits. H1.3 predicted online group identification would predict well-being to a greater extent than contact with the group; however, no significant association was found between SWL and either variable. As such, H1.3 was not supported. In Study 1a, it was suggested that identification and contact may contribute to each other within online groups, as contact with the salient online group correlated with identification, but in further analysis it was contact that was a significant predictor of SWL. This difference in findings between Study 1a and 1b may be due to the pandemic, as there was a reported reduction in feeling connected to others online during the pandemic and withdrawal from online connections (McKinlay et al., 2022; Towner et al., 2022). This was supported by the findings of

the content analysis in the present study, as some participants acknowledged that while they could reach out to others online, there was sometimes a feeling of distance within online communication, which led to them occasionally withdrawing.

H1.4 predicted that a greater number of online group-types would be associated with higher SWL and lower loneliness; however, diversity of group memberships was not significantly associated with SWL or loneliness. H1.4 was not supported, as in Study 1a. A limitation of the design of Study 1 was the length of the survey, as highlighted in the level of missing data as participants progressed through the survey, in both releases.

Conclusion

In conclusion, the findings from this study build on those of Study 1a, with similar findings in each demonstrating a relationship between identification with an online group and well-being. The findings of the current study suggest further support for SIAH processes occurring within online groups, with the results suggesting it is the psychological resources (social support) gained through identification with the online group that effects SWL. It is the first study to explore a variety of online groups, with social support received from the online group emerging as a key variable. The findings from Study 1 assist in addressing RQ1, providing greater understanding as to how online group membership may act as a 'Social Cure' for young adults.

Chapter 6. Study 2: Exploring multiple online and offline group membership during the transition to university, and the impact on health, well-being and loneliness

Chapter Overview

Study 1 suggested that for young adults aged 18-24 living in the UK, online group memberships may be able to support SIAH processes (Haslam et al., 2018), through which identification with an online group may provide psychological resources which can impact well-being. Study 1 provided cross-sectional insight into how these resources may be working within online group membership. In both Study 1a and 1b, the main finding was that identification with the salient online group predicted social support received from the online group, which in turn predicted lower loneliness and higher SWL. While the findings of Study 1 suggested initial support for online group membership being associated with well-being, Study 2 aimed to extend these findings by exploring multiple group memberships (online and offline), over the course of a significant life transition (i.e. joining university; Iyer et al., 2009). The current study aimed to explore the relationship between online group membership, offline group membership and well-being and loneliness, for young adults who have experienced the transition to university, through addressing the following research question:

RQ2: Does online group membership supplement social connectivity for young adults aged 18-24 when experiencing the transition to university?

Study 2 was designed to be a longitudinal survey study, quantitatively capturing the experiences of participants who transitioned to university during the COVID-19 pandemic and following up with those participants six months later. The need for longitudinal research has been highlighted within the loneliness literature, as

it could help provide information on factors surrounding the development and trajectory of experiencing loneliness, whether the loneliness reported is chronic or transient, and the impact this has on health and well-being (Department for Digital, Culture, Media & Sport, 2023). Therefore, it was felt important to explore the potential changes in loneliness over time in relation to the transition to university in the current study. An online survey was used at both timepoints to explore the relationship between multiple group membership (both online and offline groups) during the transition to university and well-being and loneliness.

This chapter will include the rationale for Study 2 and the associated hypotheses, an overview of the method, the findings from the study, and the conclusions drawn.

Study 2 Rationale

Young adults are more likely than other age groups to report experiencing loneliness often or always, with this being particularly prevalent between the ages of 18 and 21 (ONS, 2018). This may be associated with the life transitions young adults experience during these ages, such as leaving formal education, moving away from home, or starting university (ONS, 2018). Therefore, Study 2 focused on the transition to university, as it is a key transitional period for young adults and presented a set timeframe to explore its impacts. Previous research suggests that presenting themselves authentically online, greater social capital, greater induction satisfaction, and a sense of community at university have been associated with lower levels of loneliness in 1st year students (Thomas et al., 2020). Therefore, it would be important to further explore whether it is the identification with online group memberships that may impact levels of loneliness, as seen in offline group memberships (McIntyre et al., 2018).

Within this exploration of online and offline group membership during the transition to university and to address RQ2, this longitudinal survey explored multiple group membership, group compatibility, identification with other university students, adjustment to university, and well-being and loneliness, with the rationale for their inclusion outlined below.

A high drop-out rate has previously been reported between first and second year of university in the UK, highlighting that the transition to university can be a difficult experience and so it is important to consider factors that may facilitate adjustment to university (Ball et al., 2024). Possessing multiple group memberships and developing an identification with other university students may subsequently aid in adjusting to university protect wellbeing (providing the groups are compatible), as outlined by SIMIC (Iyer et al., 2009). Therefore, multiple group membership, group compatibility and the extent to which a new 'student' identity had developed, were explored in the present study.

Further information is also needed as to whether online group membership may help maintain connections or develop new identities when experiencing a transition, in line with SIMIC (Iyer et al., 2009; Ng et al., 2018). Similar to SIMIC, Ellison et al. (2011) proposed that Facebook users utilise three strategies for connecting, 'initiating' through meeting new people online, 'maintaining' to maintain existing connections online, and 'social information seeking' to use Facebook to discover information about people known offline, suggesting SIMIC pathways may be applicable to online connections. Furthermore, university students use social media to learn more about their social connections to develop and maintain connections, which impacts loneliness (Thomas et al., 2020). The application of the SIMIC within the present study could help to explain the mechanisms through which the process

proposed by Thomas et al. (2020) occurs, as the theory would suggest that social information seeking to develop new connections could be the beginning of the social identity gain pathway, which is integral to adjustment and well-being (Iyer et al., 2009).

The need for opportunities to develop new connections when starting university has been highlighted further following the COVID-19 pandemic. Since the pandemic, one in four university students report feeling lonely 'all' or 'most' of the time, to a greater extent than the general population (Neves & Brown, 2022). During 2020, distancing and increased online learning created limitations to the amount of socialising new university students could carry out, which was associated with higher loneliness and lower university belonging (Dingle et al., 2022).

Prior to the pandemic, loneliness was found to be the strongest predictor of mental distress for university students, with identification with university friendship groups the most effective protective factor, highlighting the importance of social identification in reducing loneliness (McIntyre et al., 2018). Additionally, developing a sense of belonging as a student within a broad context has been encouraged to address loneliness within policy (Vytniorgu, 2022). Thus, it could be beneficial to direct university students online to connect with peers, as connections are no longer solely online or offline (Thomas et al., 2020) and digital technologies have been reported as a coping strategy for loneliness (Vasileiou et al., 2019).

This chapter will explore the following research questions:

RQ2: Does online group membership supplement social connectivity for young adults aged 18-24 when experiencing the transition to university?

Through the exploration of these questions, the following hypotheses were tested, and the associated proposed models below illustrate the hypothesised relationships between the variables to be included in the mediations and moderated mediations:

H2.1: Multiple group membership (comprising of online groups and offline groups) will be associated with higher reported levels of SWL, and lower levels of loneliness and psychological distress.

H2.2: The relationship between multiple online group membership and SWL will be mediated by social support and loneliness. Multiple online group membership will positively predict social support, which will negatively predict loneliness, which will predict better well-being (please see Figure 6.1).

H2.3: The greater the social support (both provided and received) within online group memberships, the greater the levels of identification with other university students

H2.4: Compatibility will moderate the relationship between multiple online group membership and well-being, via identification with other university students and adjustment to university. Multiple online group membership will positively predict identification with other university students, for those who report compatible social group memberships, which will predict greater adjustment, which will predict better well-being (SWL, loneliness and psychological distress; please see Figure 6.2).

H2.5: There will be a difference in the levels of loneliness experienced by international students, domestic students, and those that moved away from home and those that stayed at home for university.

H2.6: There will be a difference in young adults group memberships and their well-being following the transition to university.

Figure 6.1. Proposed mediation model exploring the relationship between multiple

online group membership, social support, loneliness, and satisfaction with life
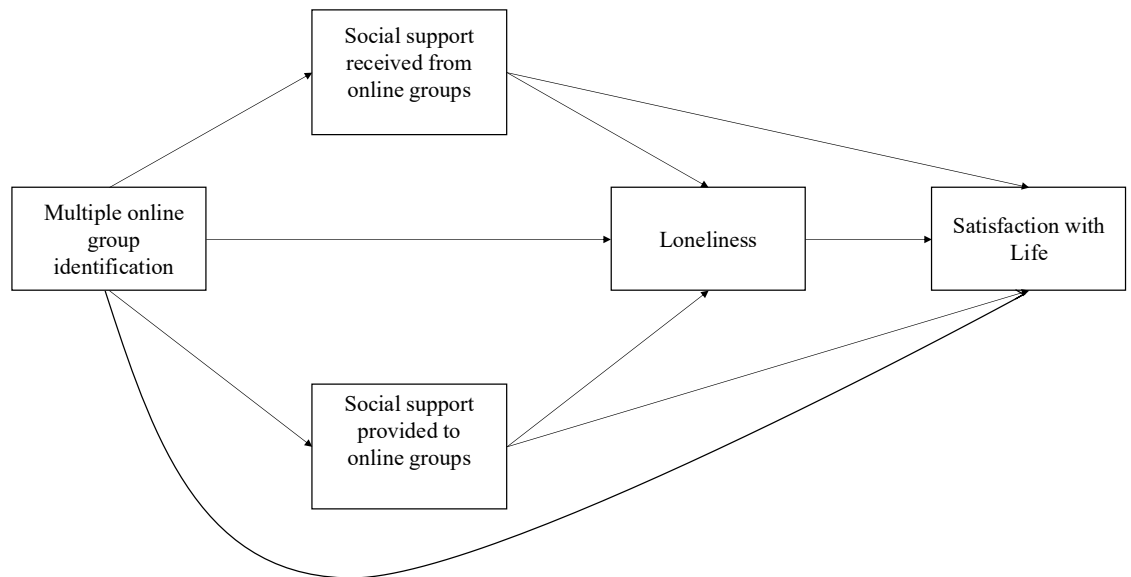
Figure 6.2. Proposed moderated mediation model exploring the relationship between

multiple online group membership, compatibility, identification with other university

students, adjustment to university and well-being
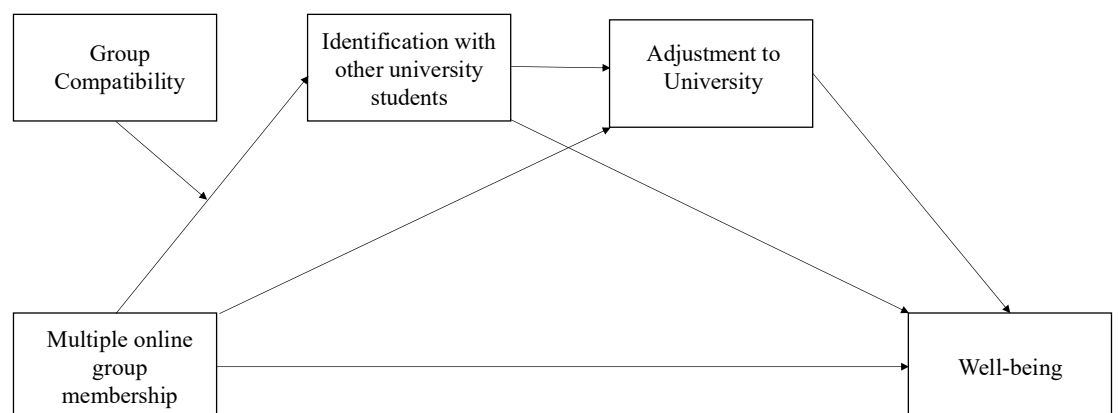
Design

The study consisted of a longitudinal online survey, with data collected at two time-points, with a six-month interval. The survey collected data relating to adjustment to university, online and offline group characteristics and psychological variables. The use of an online longitudinal survey as the method of data collection aimed to utilise the ease of follow-up and the potential to obtain a large sample (Evans & Mathur, 2005), as to attempt to address the need for longitudinal data in relation to loneliness (Department for Digital, Culture, Media & Sport, 2023). The survey was created using Qualtrics, offering accessibility on mobile and PCs. The platform allows for the use of forced responses, which were utilised for the consent questions, meaning that people could not participate unless each item relating to consent was selected. This feature was also used to allow participants to create a unique identifier code, as to match participants at each time point. Following these two questions, participants were able to skip any question they did not wish to answer.

Method

Participants

Two hundred and eighty-three responses were initially recorded in the first survey, with a total of 152 responses being removed from the dataset due to factors such as ineligibility and missing data. To provide a profile of the cases removed due to missing data and reasons why, the number of cases removed at each level of completion of the survey will be outlined, with the Qualtrics completion percentage record included in brackets. Thirty-three responses included the completion of the consent form only (4%), 5 responses completed the consent form and created a unique identifier code (5%), 1 response also selected 'YES' to the screening questions about

whether they were a member of any online groups and whether they were in their first year of undergraduate study (7%), 4 responses partially completed questions relating to their student experience (9%), 16 responses completed the open text responses about their student experience (33%), 13 responses entered the names of their online groups (35%), and 10 responses included partial online group data (44%). One further response was deleted, despite Qualtrics reporting a 96% completion rate, this response included only a few answers for one measure, with no other questions answered. To provide a profile of the cases removed due to ineligibility and reasons why, the number of cases removed will be outlined. When checking for whether any participants had completed the survey more than once, it was found two participants had through a repeated UIC. In their initial responses, they had each selected 'no' for one of the screening questions, either whether they were a member of any online groups or whether they were in their first year of undergraduate study, and the survey logic dictated that the survey would then end. These participants then went on to complete the survey in full. When looking at the time stamps of each of the survey responses for this participant, it appears they may have accidently selected 'no', as they then went on the complete the survey. As such, their initial responses were deleted, and their second responses included. A further 25 respondents selected 'NO' for one screening question, indicating they were not a member of any online groups, with this then ending the survey. Their cases were deleted. Another 23 respondents selected 'NO' for the second screening question, indicating they were not in their first year of undergraduate study, with this then ending the survey, and so their cases were deleted. This provided an overall response rate of 49.1%.

A final sample of 139 participants were included in the analysis, of which 113 (81.3%) were female and 20 (14.4%) were male. Participants were aged between 18-

24, with a mean age of 19.2 years old. 119 (85.6%) were UK students and 19 (13.7%) were international students. One hundred and eighteen (84.9%) had moved away from home to start university, with 47 (33.8%) living off campus in shared student housing, 46 (33.1%) living on campus in shared student housing, 19 (13.7%) living with family, 10 (7.2%) living alone, and 9 (6.5%) living with friends. Ninety-nine (71.2%) were experiencing a combination of online and in-person teaching/interactions.

A convenience sample of young people, aged 18-24 who had started their first year of undergraduate study, and belonged to at least one online group, were recruited between September and November 2021. Adverts detailing study information were placed around the campus of NTU on noticeboards and online, through the use of the Psychology SONA system and through welcome emails, lectures, Microsoft Teams, and NOW Learning Room posts to first year Psychology students. Online adverts were also shared on social media (Twitter, Facebook, Reddit), using online groups and forums aimed at the target sample, for example freshers Facebook groups for Universities across the UK. A total of 56 Facebook groups agreed to allowing the study advert to be posted in the group (out of a total of 221 contacted). The advert was re-posted in these groups every few days.

Participants of Study 2a were asked to include an email address to contact them in six months for the follow-up. 96 participants out of the 139 from Study 2a consented to be contacted for the follow-up. Those that included an email address were sent the link to the follow-up survey via email approximately six months later and further reminder emails were sent to all participants.

For the follow-up survey, 43 responses were initially recorded in the survey, with a total of 24 responses being removed from the dataset due to missing data. To

provide a profile of the cases removed due to missing data and reasons why, the number of cases removed at each level of completion of the survey will be outlined, with the Qualtrics completion percentage record included in brackets. 1 response included the completion of the consent form (4%), 3 responses completed the consent form and created a unique identifier code (6%), 4 responses also completed the questions relating to their use of technology during the pandemic (21%), 1 response completed partial online group questions (34%), and 6 responses completed online group data but no offline group data or well-being measures (51-53%). One further response was deleted, despite Qualtrics reporting a 96% completion rate, this response included only a few answers for one measure, with no other questions answered. To provide a profile of the cases removed due to ineligibility and reasons why, the number of cases removed will be outlined. When checking for whether any participants had completed the survey more than once, it was found four participants had through a repeated UIC. It is assumed that these responses were a result of a reminder email to complete the survey, and so their first response was included in the analysis and their second response deleted. A further four responses could not be matched through having a different UIC at time two, and these were deleted. This provided an overall response rate of 55.81% for Study 2b. Once the checks outlined above had been completed, each of the UICs from Study 2b were matched with those from Study 2a, to allow for the exploration of any changes over time participants experienced through longitudinal analysis.

A final sample of 21 participants were included in the analysis for Study 2b, of which 15 (71.4%) were female and 5 (23.8%) were male. 20 (95.2%) were UK students and 1 (4.8%) was an international student. 15 (71.4%) had moved away from home to start university, with 8 (38.1%) living on campus in shared student housing

and 5 (23.8%) living off campus in shared student housing. 16 (76.2%) were experiencing a combination of online and in-person teaching/interactions, with 5 (23.8%) experiencing in-person teaching/interactions only.

Participants were entered into a prize draw for the chance to win one of ten £15 Amazon vouchers (for both 2a and 2b), as using lottery-based monetary incentives has been associated with increased participation and are considered to be of low cost per participant (Singer, 2002). If chosen to be entered into the prize draw, participants were allocated a number and the winners chosen using a random number generator. Alternatively, participants could be allocated 2 SONA credits upon their completion of the survey (for 2a and 2b), if a NTU Psychology student.

Procedure and materials

Favourable ethical review was obtained from NTU, Schools of Business, Law and Social Sciences Research Ethics Committee (no. 2021/290 (amendment to 2021/170, 2019/177, 2019/96)) and the study followed the ethical guidelines outlined by the BPS (BPS, 2021). A participant information sheet and consent form were viewed to obtain fully informed consent prior to taking part and participants did not have to answer any questions they did not wish to answer. Within the participant information sheet, participants were informed that their participation was voluntary and could withdraw at any point during the survey and for up to two weeks following their participation and their data would not be used. If they were to withdraw following this two-week period, their data may have been used in the analysis; however, their data would have been removed from the central dataset. At the end of the survey, participants received a debrief form which included the contact details of the researcher and the director of studies. It also provided the contact information for

a charity that participants could get in touch with to discuss any issues that may arise after the survey. Please see Appendix V-VII.

The survey was created using Qualtrics and took approximately 25 minutes to complete. Fully informed consent was provided prior to taking part. This survey was released in September 2021 to mid-November 2021 for 2a. Six months later, participants from 2a were invited to take part in the 2b survey (March 2022 to July 2022). Some questions were included in response to the COVID-19 pandemic. For context, on July 19th 2021, the majority of legal restrictions surrounding socialising had been removed (Cabinet Office, 2022), meaning that for the summer leading up to participants starting university, the public managed risk through personal choice as opposed to legal requirements. On September 14th 2021, as participants were starting university, 'Plan B' was proposed by the UK Government to plan for the potential 'unsustainable pressure' faced by the NHS during the winter. On 8th December 2021, the 'Plan B' measures were brought into effect in England, due to an increase in Omicron cases, and so face masks became required again, alongside the NHS Covid Pass. On February 24th 2022, all legal restrictions were removed again. In relation to the participants in the present study, while there were no legal restrictions on socialising at either time point for the study, this context highlights the increased level of COVID-19 cases and the uncertainty surrounding changing rules that participants faced.

The online surveys mainly utilised measures which were from previously established scales, along with demographic questions, which are outlined below. Please note, for brevity, if a measure was previously included in Study 1, the measure will be listed below but with limited detail. Please refer to Chapter 5 for further detail on the measures which were included in Study 1 and 2.

UIC and screening question - Participants were initially asked to create a UIC to facilitate data withdrawal requests and match participant responses at time one and time two. A screening question was included, as participants had to belong to at least one online group in order to take part in the survey. Another screening question asked whether participants had or were due to start their first year of undergraduate study at a UK university. Selecting 'yes' allowed participants to continue with the survey, whereas an answer of 'no' ended the survey.

Demographics - Demographic information, including gender, age, ethnicity, employment status, highest qualification held, relationship status, student type and living arrangement were also collected through provided response options. Participants were also asked whether they were a Psychology student of NTU, as to explore whether to control for an ongoing intervention which aims to aid in the adjustment to university. This intervention was the Groups4Education programme, which involved five weeks of weekly 10-minute sessions about social connectedness and its impact on learning, health and well-being, which is based on the Groups4Health intervention (Haslam et al., 2016).

Connected - A measure of the extent to which participants felt they were able to stay connected to their groups during the pandemic. Responses were measured on a seven-point likert scale, from '1 – Not at all', to '7 – Completely), with 'Prefer not to answer' as an additional option. This question was added as to explore the impact of COVID-19 on social connectedness, and to act as a control measure, as was the following question.

Technology - A measure of the extent to which participants felt they were able to use technology to stay connected to their groups during the pandemic. Responses

were measured on a seven-point likert scale, from '1 – Not at all', to '7 – Completely), with 'Prefer not to answer' as an additional option.

The following three open text response questions were included, to allow the qualitative exploration of participants experiences of the pandemic in terms of staying connected and their educational experiences during this time, and were developed from the open-ended questions created by Jones et al. (2023).

Pandemic – An open response text box was added to explore the question "Is there anything you think we should know or understand better about your experiences of staying connected during this time?"

Education – An open response text box was added to explore the question "Is there anything you think we should know or understand better about your experiences of education during the Covid-19 (Coronavirus) pandemic?"

University – An open response text box was added to explore the question "Is there anything you think we should know or understand better about your experiences of starting university during this time?"

With regard to the following measures, each of the questions were asked in relation to up to three online and up to three offline groups:

Group Listings – As used in Study 1, please refer to Chapter 5 for details; however, the following details differed in the present study. The description of an offline group (taken from the group listing task used in Haslam et al., 2008) added 'You do not have to interact with these groups solely offline and we are conscious of the impact Coronavirus may have had on the ability to interact with groups offline'. Participants were then asked to respond to the same set of questions for up to three online groups. The decision to list three groups rather than six, as in the original, or

four which were used in Study 1, was made to reduce participant attrition, given the number of questions relating to each group and this was supported by the responses in Study 1, as it was found that only a small number of participants completed the questions relating to four groups. This provided a number of online groups, and acted as a prompt for each of the online group measures. This was also asked about in relation to offline groups, creating a number of offline groups and a prompt for each of the offline group measures. This also provided a total number of groups listed.

Belonging – A single-item measure asked participants whether they had belonged to the group prior to starting university (Haslam et al., 2018).

Importance – Participants were asked to rate how important each group reported was to them and responded on a seven-point likert scale from '1 – Not important to '7 – Very important, and 'Prefer not to answer' was added as an option (Haslam et al., 2018).

Group Type - The purpose of the online group was reported, to understand the types of online groups participants were members of, which was developed by Buglass et al. (2016), Binder et al. (2012) and McCarty et al. (2001).

Percentage of group activities which are online or offline - This question explored whether, and the extent to which, participants interacted with members of the online group offline and was developed by Kan et al. (2018).

Group identification - The use of the single item measure of group identification (Postmes et al., 2013) asked 'I identify with members of this group' and Qualtrics allowed the group named participants entered to be auto-filled within the question, and so participants were asked this question for up to three online groups and up to three offline groups (depending on how many groups were listed by the

participant). As in Study 1, a binary identification score for each group participants reported being a member of was created from this measure (Sani et al., 2015). From this, the number of identifications indicating multiple online group memberships, and separately multiple offline group memberships, and finally a combined online and offline multiple group memberships, was calculated by summing the binary identifications (for a score of 0-3 for both the online and offline multiple group memberships, and a score of 0-6 for the combined online and offline multiple group memberships).

Social Support Scales - A measure of the social support provided to the group and a measure of the social support received by the group was included in the survey, created by Haslam et al. (2005). The measure of support received had an internal consistency of .88 in the current study, with the measure of support provided having an internal consistency of .87.

Multiple Identity Compatibility – A four-item measure of compatibility of group membership, to allow the exploration of the quality of relationships between groups (Haslam et al., 2018), with participants asked to consider all groups (both online and offline). Items included measures of harmony between groups and was measured on a seven-point likert scale from '1 – Not at all' to '7 – Agree completely', and 'Prefer not to answer' was added as an option. The internal consistency of this measure was .80 in the current study.

Satisfaction with Life Scale - The Diener et al. (1985) satisfaction with life scale was included to measure well-being. The internal consistency of this measure was .86 in the current study.

UCLA Loneliness Scale (3-ILS) - The 3-ILS (Hughes et al., 2004) was used as a short scale for measuring loneliness, with an internal consistency of .82 in the current study.

Psychological distress - The K6 (Kessler et al., 2002) measures the psychological distress experienced over the last 30 days and had an internal consistency of .89 was found in the current study.

Adjustment to University – An 18-item scale, to explore adjustment to university, including items such as "I have made many friends here". Responses were measured on a seven-point likert scale from '1 – Not applicable' to '7 – Very applicable' (Van Rooijen, 1986). 10 items were reverse scored, as these referred to poor adjustment. The scale total was then summed from the 10 reverse scored items and the 8 remaining items, with total scores ranging from 18 and 126. The internal consistency of this measure was .89 in the current study.

Identification with other University Student – Adapted from Postmes et al. (2013), the single item measure stated, 'I identify with other university students' and was measured on a seven-point likert scale from '1 – Not at all' to '7 – Agree completely', and 'Prefer not to answer' was added as an option.

Statistical analysis information

Power analysis - The data was checked to explore the impact of missing data prior to considering the appropriate sample size to conduct the statistical analysis. A-priori power analysis was conducted using G*Power 3.1.9.7 (Faul et al., 2007). For the most complex model proposed within the analysis (a moderated mediation with six predictor variables to explore H2.4), the total sample size required would be 98 participants, assuming an alpha of .05 and .80 power, with a medium effect size. While

the data relating to the online groups contained a sample of over 100 participants, the offline group data and the data relating to the well-being variables dropped below the projected threshold for appropriate power. Therefore, the most complex model that could be explored with the sample size accounting for missing data included four predictor variables (e.g., a simple mediation model, controlling for age and gender), with a sample size of 85 participants required, assuming an alpha of .05 and 80 power, with a medium effect size.

Assumptions - Outliers, levels of missing data, and assumptions of normality were all checked before the analysis began.

Histograms and skewness and kurtosis values were used to check whether the data were normally distributed (Pallant, 2020). Age was non-normally distributed, with a skewness of 1.33 (SE = .206) and kurtosis of .779 (SE = .410), indicating the sample were positively skewed to a younger sample (46.8% were aged 18), reflective of the largest age group of first-year undergraduate students in the UK being under 20 years old (HESA, 2023). Gender was non-normally distributed, with a skewness of -1.979 (SE = .210) and kurtosis of 1.944 (SE = .417). When explored further through histograms, the data was skewed by 113 participants being female. Age and gender were added as control variables within each of the analyses.

Missing Values Analysis was carried out in SPSS, which demonstrated 79 participants had at least one missing value of a variable. Questions relating to the third offline group had the greatest number of missing values, with the most common pattern for missing data including a compatibility item, a SWL item, a loneliness item, 4 adjustment to university items, a psychological distress item, and several offline group items. When exploring the results of Little's MCAR test, the value was non-

significant, x^2 (3256) = 3040.18, $p<.997$, indicating the data was MCAR. Consequently, data that is considered to be MCAR can be dealt with using a number of approaches, including deletion and imputation techniques (Fox-Wasylyshyn & El-Masri, 2005).

From the 139 responses from 2a, 46 participants missing data relating to one item from a variable and from the 21 responses from 2b, 2 participants were missing data relating to one item from a variable which was replaced using case mean imputation (Fox-Wasylyshyn & El-Masri, 2005). This method allows the mean score to be calculated from the items that have been responded to, to create data based on that of the participant rather than the sample as a whole (Fox-Wasylyshyn & El-Masri, 2005). It has been reported to be a robust method to approach data MCAR (Fox-Wasylyshyn & El-Masri, 2005). However, this method is not considered to be appropriate at variable level (Fox-Wasylyshyn & El-Masri, 2005), therefore, if more than one item from a variable missing, it was considered missing data and imputation was not used. In these cases, pairwise deletion was selected when running the analyses, as to exclude cases only if needed for the analysis (Pallant, 2020).

The decision was made to examine the cross-sectional data from Study 2a as the main analysis within this chapter, with a small longitudinal analysis exploring changes in health and group memberships over time, as the sample size would be too small to conduct the original planned analysis. The results from the cross-sectional analysis of the Study 2a data will be presented below, with the longitudinal analysis of the time one and time two data (2a and 2b) to follow.

Results

Cross-sectional analysis of Study 2a

Descriptive statistics and partial correlations were carried out to investigate the hypotheses outlined earlier in the chapter, using SPSS (version 29; IBM Corp, 2023). Following this, mediation and moderation analyses was carried out using PROCESS macro (version 4.3.1; Hayes, 2022).

This section will initially provide an overview of the group-level data to provide information on what groups participants reported within the survey, as a background to the participant-level analysis.

It will then go on to explore the relationships between the participant-level variables within Study 2a, for example the predictor variable of online group membership and the outcome variable of satisfaction with life, with the aim of addressing H2.1-H2.5.

Overview of the group-level analysis

The following section will explore the group-level data, providing a descriptive overview of the types of online and offline groups participants reported being a member of. 119 (85.6%) belonged to three online groups, 15 (10.8%) belonged to two online groups and 5 (3.6%) belonged to one online group. It was found that 12 (8.6%) of participants identified with one online group, 40 (28.8%) identified with two online groups, and 60 (43.2%) identified with three online groups, with 6 (4.3%) reporting no identifications with their online groups. Participants reported identifying with an average of 2 of their reported online groups.

A total of 392 online groups were reported by the 139 participants. The type of online groups participants reported being a member of were explored, with 146 friendship groups, 96 family groups and 49 school/education groups (Table 6.1).

Table 6.1. Frequency of online group type

Group Type	Frequency
Friends	146
Family	96
School/Education	49
Local Interest/Community	22
Hobbies/Leisure	17
Games	8
Support	8
Health and Fitness	6
Sport	5
Science/technology	4
Identity/Relationships	3
Spiritual/Religion	3
Other	3
Prefer not to say	2
Professional	2
News/Politics	2
Arts/Culture	1
Travel	1
Buy and sell	1
Food	0
Funny	0
Parenting	0
Businesses	0

When considering the percentage of activities with the online groups that were online, 55 (13.2%) of the groups reported were considered to be solely online groups (100% online), with 4 (1%) of the groups considered to be solely offline (0% online). The mean percentage of activities with the groups being online was 57.72% (SD = 29.32), suggesting that participants felt the online groups reported within the survey had slightly more activities online as opposed to offline, highlighting how online connections are known offline (boyd & Ellison, 2007; Reich et al., 2012).

37 (26.6%) participants did not report an offline group membership. 84 (60.4%) reported being a member of three offline groups, with 8 (5.8%) belonging to two offline groups and 10 (7.2%) belonging to one offline group. It was found that 9 (6.5%) of participants identified with one offline group, 27 (19.4%) identified with two offline groups, and 46 (33.1%) identified with three offline groups, with 3 (2.2%) reporting no identifications with their offline groups. Participants reported identifying with an average of 2 of their reported offline groups.

A total of 279 offline groups were reported by the 139 participants. The type of offline groups participants reported were explored, with 107 friendship groups, 51 family groups and 32 school/education groups (Table 6.2).

Table 6.2. Frequency of offline group type

Group Type	Frequency
Friends	107
Family	51
School/Education	32
Colleagues	24
Hobbies/Leisure	14
Sport	13
Health and Fitness	9
Local Interest/Community	9
Other	6
Spiritual/Religion	5
Prefer not to say	3
Professional	2
Buy and sell	1
Food	1
Games	1
Businesses	1
Travel	1
News/Politics	1
Arts/Culture	1
Support	0
Identity/Relationships	0
Parenting	0
Funny	0
Science/technology	0

As friendship groups were the most common type of online and offline group reported, followed by family groups (both online and offline), these groups will be explored further through correlation to investigate whether the online and offline identities for these groups were separate.

The relationship between online family identification for the salient online group and offline family identification for the salient offline group was investigated using Spearman rho. There was a positive correlation between identification with the salient online friendship group and identification with the salient offline friendship group ($r = .65$, $n = 14$, $p=.011$), suggesting online and offline friendship identities may be similar. There was no significant association between identification with the salient online family group and identification with the salient offline family group ($r = .44$, $n = 19$, $p=.057$).

When considering the percentage of activities with the offline groups that were offline, 47 (11.3%) of the offline groups reported were considered to be solely offline groups (100% offline), with 2 (.5%) of the groups considered to be solely offline (0% offline). The mean percentage of activities with the groups being offline was 70.6% (SD = 24.52), suggesting that participants felt the offline groups reported within the survey had more activities offline than they did online.

Overview of the participant-level analysis

The following section will explore the participant-level data, providing a descriptive overview of the group and well-being variables included in the survey. Participants reported being slightly satisfied with life (Diener et al., 1985), a moderate level of psychological distress (Prochaska et al., 2012; Stolk et al., 2014), and a moderate level of loneliness (Hughes et al., 2004). Participants identified with both

their online and offline groups, with the cut off for identifying with the group being a score of 5 and above (Sani et al., 2015a); however, participants reported not identifying with other university students. When considered together, online and offline group membership created a multiple group membership score of 4.84. Please see Table 6.3.

Table 6.3. Descriptive statistics for the participant-level variables

Variable (possible range)	Mean	Standard deviation
1. Loneliness (3-9)	6.6	1.18
2. Satisfaction with life (5-35)	21.13	6.5
3. Psychological distress (0-24)	11.08	5.64
4. Online group 1 identification (1-7)	5.74	1.51
5. Online group 2 identification (1-7)	5.48	1.51
6. Online group 3 identification (1-7)	5.13	1.72
7. Multiple online group membership (0-3)	2.31	.85
8. Social support received from online groups (3-21)	14.69	3.33
9. Social support provided to online groups (3-21)	15.48	3.39
10. Offline group 1 identification (1-7)	5.79	1.22
11. Offline group 2 identification (1-7)	5.4	1.56
12. Offline group 3 identification (1-7)	5.38	1.56
13. Multiple offline group membership (0-3)	2.36	.81
14. Social support received from offline groups (3-21)	15.76	3.13
15. Social support provided to offline groups (3-21)	16.18	3.23
16. Multiple group membership combined (0-6)	4.84	1.23
17. Group compatibility (1-7)	5.11	1.08
18. Adjustment to university (18-126)	79.73	18.26
19. Identification with other university students (1-7)	4.66	1.6
20. Ability to stay connected to their groups during the pandemic (1-7)	4.53	1.6
21. Use of technology to stay connected during the pandemic (1-7)	5.99	1.37

Correlation Analysis

Partial correlations were carried out to explore the relationships between variables and to inform whether further analysis was justified. Table 6.4 shows the partial correlations of each of the main variables relating to group one, controlling for age, gender, whether they were a Psychology student of NTU, use of technology and perceived ability to maintain connections to groups during the pandemic. Age and gender were entered as control variables as they were significantly skewed, while also ensuring whether they were a Psychology student of NTU, the use of technology and perceived ability to maintain connections to groups during the pandemic had no influence on the relationships being investigated. When comparing the partial correlations to the zero-order correlation coefficients, it would suggest that controlling for being a Psychology student of NTU did not impact the relationship between the main study variables. Therefore, being a Psychology student of NTU was not included as controls in the analyses following the partial correlations.

Table 6.4. Partial correlations for each of the main variables

Variable	1.	2.	3.	4.	5.	6.	7	8	9	10	11	12	13
1. Loneliness	-												
2. Satisfaction with life	**-.44****	-											
3. Psychological distress	**.68****	**-.65****	-										
4. Social support received from online groups	.02	.13	-.05	-									
5. Social support provided to online groups	.14	.12	.06	**.67****	-								
6. Multiple online group membership	-.06	.13	-.05	**.48****	**.25***	-							
7. Social support received from offline groups	.02	.19	-.14	**.26***	**.36***	.17	-						
8. Social support provided to offline groups	.00	.05	-.12	.05	**.32***	.08	**.79****	-					
9. Multiple offline group membership	-.17	.12	-.19	.13	.03	.2	**.54****	**.4****	-				
10. Multiple group	-.05	.12	-.13	**.4****	.19	**.77****	**.47****	**.36***	**.79****	-			

	1	2	3	4	5	6	7	8	9	10	11	12	13
membership combined													
11. Group compatibility	**-.25***	.15	-.14	**.48****	.42**	**.23***	**.49****	**.41****	**.43****	**.43****	-		
12. Adjustment to university	**-.66****	**.51****	**-.59****	-.01	-.06	.1	.12	.09	.13	.12	**.27***	-	
13. Identification with other university students	**-.32***	**.27***	**-.32***	**.24***	.2	**.31***	**.44****	**.35***	**.48****	**.45****	**.36****	**.53****	-

Note: * *p* < .05, ** *p* <.001

When exploring H2.1, multiple group membership combined (both online and online groups which participants reported identification with) was not associated with each of the well-being variables, and so H2.1 was not supported.

As seen in Table 6.4, there was no significant association between multiple online group membership and each of the well-being variables (SWL: $r(81) = .13$, $p=.242$, with a small effect size (Cohen, 1988); Psychological distress: $r(79) = -.053$, $p=.673$, with a small effect size (Cohen, 1988); Loneliness: $r(79) = -.06$, $p=.597$, with a small effect size (Cohen, 1988)). There was a small positive partial correlation between multiple online group membership and social support received from the online groups ($r(106) = .483$, $p<.001$), suggesting the more online groups identified with, the greater the perceived social support received from the online groups. There was a small positive partial correlation between multiple online group membership and the social support provided to the online groups ($r(103) = .254$, $p<.009$), indicating the more online groups identified with, the more participants perceived themselves to be providing social support to the online groups. However, there was no significant association between social support received, and provided, online and each of the well-being variables. This would indicate a lack of support for H2.2.

There was a small positive partial correlation between social support received online and identification with other university students ($r(82) = .24$, $p=.028$), suggesting the greater the support received from online groups, the more likely participants were to identify with other university students, which would indicate partial support for H2.3. However, there was no significant association between social support provided online and identification with other university students ($r(81) = .2$, $p=.07$).

There was a positive partial correlation with medium effect between multiple online group membership and identification with other university students ($r(81) = .314$, $p<.004$),

suggesting the more online groups participants identified with, the more likely they were to identify with other university students, indicating partial support for H2.4. However, there was no significant association between multiple online group membership and adjustment to university ($r(81) = .103$, $p=.353$). There was a positive partial correlation with large effect between adjustment to university and identification with other university students ($r(95) = .525$, $p<.001$), indicating better adjustment to university was associated with greater identification with other university students. Furthermore, there was a positive partial correlation between group compatibility and multiple online group membership, multiple offline group membership, and multiple group membership combined, suggesting the greater the number of group memberships (both online and offline), the greater the group compatibility. There was a negative partial correlation between loneliness and group compatibility ($r(93) = -.247$, $p=.016$), indicating that lower levels of loneliness were associated with higher levels of group compatibility. There was a small positive partial correlation between adjustment to university and group compatibility ($r(94) = .273$, $p=.007$), suggesting better adjustment to university was associated with higher levels of group compatibility. There was a medium positive partial correlation between identification with other university students and group compatibility ($r(94) = .363$, $p<.001$), indicating greater identification with other university students was associated with higher levels of group compatibility. These correlational results would support further exploration of H2.4 through a moderated-mediation model.

Interestingly, there was no significant association between multiple offline group membership and each of the well-being variables (SWL: $r(73) = .115$, $p=.328$; Psychological distress: $r(71) = -.193$, $p=.103$; Loneliness: $r(72) = -.169$, $p=.15$).

In summary, multiple online group membership did not partially correlate with any of the well-being variables or adjustment to university, but was associated with online social support (both provided and received), identification with other university students and group

compatibility. Similarly, multiple offline group membership did not partially correlate with any of the well-being variables or adjustment to university, but was associated with social support provided and received in offline groups, identification with other university students and group compatibility. When considered together, multiple online and offline group membership was not associated with each of the well-being variables and so these findings did not support H2.1, as there was no significant association between multiple group membership (of either online, offline, or combined groups) and well-being. Due to this lack of correlational association between the SIAH variables, combined with the lack of power needed to explore a more complex model, H2.2 was not pursued through further analysis. Interestingly, social support received from the online groups was positively partially correlated with identification with other university students, indicating partial correlational support for H2.3; however, there was no significant association between the social support provided within online groups and identification with other university students. Multiple online group membership was positively associated with group compatibility, identification with other university students and adjustment to university, with identification with other university students positively associated with SWL and negatively associated with psychological distress and loneliness, suggesting initial partial correlational support for H2.4, supporting further investigation of these relationships. However, due to a small sample size there was insufficient power to explore the proposed model for H2.4 further. As such, the mediating effect of identification with other university students on the relationship between multiple online group membership and adjustment to university was explored, and the moderating effect of group compatibility on the relationship between multiple online group membership and identification with other university students was explored separately.

Mediation Analysis

A simple mediation analysis was conducted to test the prediction that the relationship between multiple online group membership and adjustment to university will be mediated by identification with other university students (revised H2.4). Model 4 in version 3.5 of Hayes' PROCESS macro was used (Hayes, 2022) and the analysis involved 5000 bootstrapping with 95% lower and upper confidence intervals. Age and gender were included as control variables in the analysis.

- **Multiple online group membership was a positive predictor of identification with other university students (coeff = .61, SE = .17, t = 3.56, *p*= .0006, LLCI = .27, ULCI = .94).**

- **Identification with other university students was a positive predictor of adjustment to university (coeff = 7.13, SE = 1.27, t = 5.60, *p*= .0000, LLCI = 4.60, ULCI = 9.67).**

- The direct effect of multiple online group membership on adjustment to university was not significant (*effect* = -2.13, SE = 2.07, t = -1.03, *p*= .3065, LLCI = -6.25, ULCI = 1.99)

- **The indirect effect of multiple online group membership on adjustment to university through identification with other university students was significant (*effect* = 4.32, BootSE = 1.46, BootLLCI = 1.76, BootULCI = 7.56).**

- The total effect of multiple online group membership on adjustment to university was not significant (*effect* = 2.19, SE = 2.26, t = .97, *p*= .3346, LLCI = -2.30, ULCI = 6.68).

Figure 6.3. Mediation model of hypothesised model. On the *c* path, the total effect is reported, with the direct effect reported in the brackets. ****p*<.001, ***p*<.05
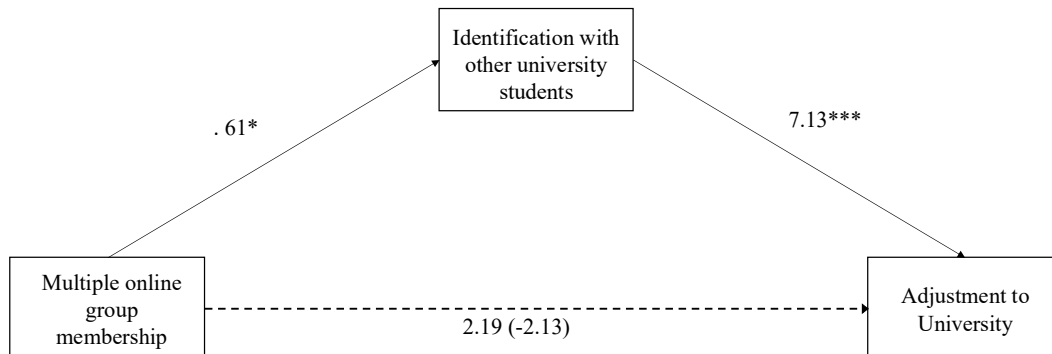
In summary, a significant relationship between multiple online group membership and adjustment to university was found through identification with other university students, supporting H2.4. Higher multiple online group membership was a positive predictor of identification with other university students, which was a positive predictor of adjustment to university. While the total effect of online group membership on adjustment to university was non-significant, the results suggest an indirect-only mediation (Hayes, 2022).

Moderation Analysis

A simple moderation analysis was conducted to test the prediction that the relationship between multiple online group membership and identification with other university students will be moderated by group compatibility (revised H2.4). Model 1 in version 3.5 of Hayes' PROCESS macro was used (Hayes, 2022) and the analysis involved 5000 bootstrapping with 95% lower and upper confidence intervals. The percentile bootstrap confidence interval (CI) method was used. Age and gender were included as control variables in the analysis.

The interaction between multiple online group membership and group compatibility did not significantly predict identification with other university students, indicating no

moderation (coeff = -.19, SE = .16, t = -1.17, *p*= .2448, LLCI = -.52, ULCI = .13). The revised H2.4 was not supported.

Mann-Whittney U Analysis

The current study aimed to explore differences in reported levels of loneliness across student groups, to address H2.5. A Mann-Whittney U test was used, as there was a large difference in size in terms of the responses (118 participants had moved away from home to start university, compared to 21 who had not) and so comparing the medians of the two groups was considered to be more appropriate than comparing the means through a t-test (Pallant, 2020). It revealed no significant difference in the loneliness levels of those who moved away from home (md = 6.5, n = 86) and those who stayed at home for university (md = 7.0, n = 17), U = 706.5, z = -.221, *p* = .825, r = -.022. A second Mann-Whittney U test revealed no significant difference in the loneliness levels of those who were domestic students (md = 7.0, n = 93) and those who were international students (md = 6.5, n = 10), U = 450.5, z = -.164, *p* = .870, r = -.016.

In summary, there were no significant differences found between the loneliness reported by domestic or international students, nor between students who moved away from home for university and those who stayed at home for university. Therefore, H2.5 was not supported.

Longitudinal analysis

Wilcoxon signed rank tests

Study 2b aimed to explore the differences in young adults online and offline group memberships and their well-being following the transition to university, 6 months after Study 2a. Wilcoxon signed rank tests were carried out to explore differences in the well-being scores of participants in Study 2a (during the transition to university) and Study 2b (6 months after the transition to university) to address H2.6.

A Wilcoxon signed rank test was conducted, due to the small sample size, to compare the SWL scores for the sample of young adults during the transition to university and 6 months after the transition to university. There was no significant difference in SWL scores between time points, $z = 1.553$, n = 20, $p= .120$.

A Wilcoxon signed rank test was conducted to compare the loneliness scores for the sample of young adults during the transition to university and 6 months after the transition to university, with no significant difference in loneliness scores between time points, $z = -.071$, n = 20, $p= .944$.

A Wilcoxon signed rank test was conducted to compare the psychological distress scores for the sample of young adults during the transition to university and 6 months after the transition to university. There was no significant difference in psychological distress scores between time points $z = -.214$, n = 18, $p= .831$.

A Wilcoxon signed rank test was conducted to compare the adjustment to university scores for the sample of young adults during the transition to university and 6 months after the transition to university, with no significant difference in adjustment scores between time points, $z = 1.382$, n = 20, $p= .167$.

A Wilcoxon signed rank test was conducted to compare the multiple online group membership scores for the sample of young adults during the transition to university and 6 months after the transition to university. There was no significant difference in multiple online group membership scores between time points $z = -.366$, n = 15, $p= .714$.

A Wilcoxon signed rank test was conducted to compare the multiple offline group membership scores for the sample of young adults during the transition to university and 6 months after the transition to university. There was no significant difference in multiple offline group membership scores between time points, $z = .000$, n = 13, $p= 1.000$.

A Wilcoxon signed rank test was conducted to compare the group compatibility scores for the sample of young adults during the transition to university and 6 months after the transition to university. There was no significant difference in group compatibility scores between time points $z = .954$, n = 21, $p= .340$.

In summary, there were no significant differences found between 2a and 2b in relation to well-being and multiple group memberships, both online and offline, following the transition to university. Thus, H2.6 was not supported.

Content analysis

Content analysis was used to infer insights within the responses provided by participants in the three open-ended questions included in both surveys (2a & 2b). The open-ended questions were included to explore participants experiences of staying connected during the COVID-19 pandemic, and to explore their educational experiences during the pandemic, and to explore their experiences of starting university. These questions were included as to qualitatively explore RQ2: Does online group membership supplement social connectivity for young adults aged 18-24 when experiencing the transition to university following the COVID-19 pandemic? It was hoped that the findings from these three questions would provide greater insight into RQ2 and may help to inform the interview schedule used within Study 3.

Qualitative Analysis Procedure: The responses from the open-ended questions were collected within the Qualtrics surveys and then compiled within a Microsoft Excel spreadsheet. For the first open-ended question: "Is there anything you think we should know or understand better about your experiences of staying connected during this time?", 31 responses were included in the analysis from 2a and 8 responses were included in the analysis from 2b. For the second open-ended question: "Is there anything you think we should know or understand better about your experiences of education during the COVID-19 (Coronavirus) pandemic?", 41 responses were included in the analysis from 2a, and 10 responses were included in the

analysis from 2b. For the third open-ended question: "Is there anything you think we should know or understand better about your experiences of starting university during this time?", 39 responses were included in the analysis from 2a, and 7 responses were included in the analysis from 2b. As such, a total of 137 response were included in the analysis. This study used an inductive approach to the analysis (Elo & Kyngas, 2007). Content analysis was carried out using the analytic procedure as outlined in Chapter 5 for Study 1b in the Content Analysis section.

Qualitative Analysis: Four themes were developed from these responses surrounding participants experiences of education and staying connected during the pandemic: (1) The positives, negatives, and practicalities of being online, (2) In-person is missed, (3) Loneliness, isolation, and anxiety, (4) The impact of the pandemic on educational experiences. Please see Table 6.5 for the themes, subthemes, and exemplary quotes.

Table 6.5. Themes and subthemes developed from the content analysis, with quotes to illustrate

Theme	Subtheme	Exemplar quotes
The positives, negatives, and practicalities of being online	Facilitates connection	I can't emphasize enough the importance of technology for staying connected throughout the pandemic. When the school I attended sixth form at closed due to the restrictions, all of my A-Level teaching went online for about five months, this meant that I was unable to see any of my classmates in person for a long time. However, technology allowed us to stay connected throughout the times of closure. I would even go as far as to say that it brought us closer together and made us better friends.
	Managing risk/communication	Levels of comfort for different people vary greatly - many found using technology to keep connected much less draining on their well-being compared to having to physically do things
	Limited by knowledge and practicalities	Staying connected is limited by my ability to use and knowledge of online tools
	Closeness through proximity, otherwise online is the only option	Living at university helps me stay connected to those around me of course, however I naturally have less interaction with my home friends and family now
In-person is missed	In-person facilitates connection	I find it good how we are allowed to mix with other students now and we are able to attend lectures in person this has made it easier to settle in and meet people
	Online isn't the same	It is difficult to create connections online and keep good connections purely online
	Support interrupted	Support during the pandemic was much more difficult, especially when dealing with mental health issues
Loneliness, isolation and anxiety	Difficulties making connections	During this time I have found it extremely difficult to attend lectures and other places as now I have moved cities I don't know anyone and am really struggling to interact with new people as I can't seem to develop a connection with anyone. Not going to the welcome week is probably why but now due to poor attendance I am quite scatter brained with whether I am up to date with the work
	Withdrawing from others	I was fully able to communicate with family and friends through online sources however at times I felt isolated and not wanting to/unable to communicate
	Perception of others experiencing increased anxiety	It was very hard to meet new groups of people having been not able to attend the uni in person for a group tour or meet up with potential new students. I think it was also hard to communicate with people as alot of people lost their confidence and therefore struggled to make new friends, the majority of people I have spoken to have expressed this opinion
The impact of the pandemic on	Shifting between online and offline, an adjustment	Online learning was hard at first but eventually everyone adapted

educational experience		
	Missing connection with peers online	I did not fully enjoy online sessions during my first year I totally prefer in person teaching i feel more connected with people and active
	Difficulties with online learning and the impact on motivation	It was difficult to stay motivated academically during the pandemic. It's been an adjustment to get back into things this year especially with the pandemic still an issue
	Online learning is independent learning	I think online teaching did not truly reflect a person's intelligence as it also truly tested the independence of students and some people that I know, regardless of how clever they were, struggled with this!
	Online learning is accessible	online learning helped when I was inpatient in hospital as I could still attend classes
	Unprepared for university following COVID	I don't feel prepared for University, as we have all been in a bubble for the past two years. It feel as though we are all dissociated from one another now yet we are expected to make lifelong friends at University
	Fear of missing out on a social university experience	I was very concerned about starting as I wanted as much of a 'normal' university experience as I could - I had the option of starting last year but prolonged it by a year to give it some time for the pandemic to die down a little

The following sections provide a descriptive overview of the four themes developed.

(1) The positives, negatives, and practicalities of being online

The relationship with online communication was not viewed statically, with it changing depending on the situation, practical issues, and the feasibility of in-person communication. Online communication facilitated connection with existing group memberships and relationships during the pandemic, with the lack of in-person opportunities to socialise emphasising the importance of being able to utilise online communication. However, the ability to do so was limited by the level of knowledge and skill related to technology, and by practical issues such as the Wi-Fi working. Some participants raised their own abilities, or those of family, friends, and teachers, as a factor affecting participation in online spaces. It was also noted that online communication helped with balancing the need to connect with others while considering the potential risk of COVID-19. For some participants, there was anxiety about catching COVID-19 themselves and an awareness of others being concerned about the risk of transmission. For some, online communication was found to meet the need for connection without the worry of meeting in-person, while for others there was a worry about the impact of not socialising in-person on their confidence.

(2) In-person is missed

While online communication was used to facilitate connection during the pandemic, this was usually accompanied by the sentiment that online communication isn't the same as in-person communication, and that in-person communication was missed. Online communication was considered to help up to a point, lacking physical interactions and the quality of connection produced through in-person communication. This loss was accentuated during periods of lockdown and distancing. Additionally, there was difficulty in developing and maintaining relationships online, with an impending sense of online communication not being enough to fulfil the connection and a fear of losing groups as a result.

(3) Loneliness, isolation, and anxiety

While it was reported online communication could be used to facilitate connection, some participants recognised that during the pandemic they withdrew from socialising with others. This was linked to worsening mental health and increased feelings of loneliness. It was difficult to balance the need to socialise to access much needed support, with the desire to isolate. Some participants reported that it was difficult to meet new people and join new groups during the pandemic, which when combined with the transition to university, led to periods of loneliness, isolation, and anxiety. When looking forward and as restrictions were easing, there was an observation that others might struggle with returning to normal due to a perception that others lost confidence during the pandemic and experienced increased anxiety. Each of these subthemes were viewed as barriers to connection, contributing to poor mental health, which in turn impacted connection, suggesting a cyclical relationship.

(4) The impact of the pandemic on educational experiences

Participants described understanding the need for online education during the pandemic but struggled with adjusting to online systems and a more independent way of learning. These factors impacted motivation, compounded by a perception that online learning was primarily a solitary experience, lacking support and connection with peers. This was linked to a feeling of unpreparedness for the transition to university, and a worry that university would not be experienced as expected. However, it was also recognised that online learning was an accessible learning experience, allowing flexibility and convenience, especially for those experiencing health issues.

When considering RQ2, the content analysis would suggest young adults who responded within the survey felt online group membership was useful and necessary for the maintenance of connection, but only to a certain point, and in-person connection was preferred. Experiencing the transition to university following the COVID-19 pandemic was a period of

uncertainty and upheaval of existing group memberships and difficulties forming new connections, which was linked to feelings of loneliness. Online group membership could only do so much, and while appreciated and utilised, there was a desire for normality when socialising as to not miss out on the social university experience.

Discussion

The main aim of the current study was to explore whether online group membership impacts on the health, well-being, and loneliness of young adults experiencing the transition to university, following the COVID-19 pandemic. Study 2 expanded on Study 1, through the inclusion of multiple online group membership, multiple offline group membership, and multiple group membership combined and the focus on a transitional period, with the aim of applying the SIAH literature, in particular SIMIC, to explore both the impact of online group membership and the experience of loneliness for an undergraduate sample.

Loneliness within the university student population is of concern (Diehl et al., 2018; Hysing et al., 2020; Vytniorgu et al., 2021), with participants in the current sample reporting a moderate level of loneliness (Hughes et al., 2004). The SIAH literature argues that the social groups one identifies with act as a protective factor in reducing the loneliness and mental distress experienced by students during university (McIntyre et al., 2018). Furthermore, SIMIC (Iyer et al., 2009) outlines how being able to maintain existing group memberships, while developing new group memberships (providing the groups are compatible), during the transition to university will support well-being. However, there has been limited application of this to the exploration of online group membership.

For H2.1, it was predicted multiple group membership (both online and offline respectively, as well as combined) would be associated with higher reported levels of SWL, and lower levels of loneliness and psychological distress. Multiple group membership, when

considering offline groups, has been associated with better mental and physical health (Iyer et al., 2009; Sani et al., 2015a). The results indicated neither online nor offline multiple group membership was associated with each well-being variable and H2.1 was not supported. While exploring the effects of online multiple group membership was a central aim of the thesis, it was surprising there was no association between offline multiple group membership and well-being, contradicting previous work established within the SIAH literature (Haslam et al., 2008; Seymour-Smith et al., 2017; Steffens et al., 2016a). It may be that the timing of the study contributed to this finding, as in the content analysis participants raised how the technical abilities (of themselves and others) impacted on their capability to engage in online communication during the pandemic, which may have impacted offline group membership in the present study. Draper and Dingle (2021) reported that for offline groups that became online groups during the pandemic, while identification with the online group was still present, this was lower than the identification with the group when it was offline, which in turn was associated with lower well-being. Furthermore, young adults felt as though they withdrew from social connections in lockdown, found it difficult to maintain connections, and felt as though relationships changed over time during the pandemic (McKinlay et al., 2022). This was supported by the qualitative findings in the present study, with participants reporting a desire to withdraw from socialising, while recognising the need to connect online to maintain relationships and access support. The quantitative findings may demonstrate a lingering effect of isolating oneself during the pandemic, as participants also spoke of perceived anxiety surrounding the return to 'normal', following a loss of confidence during the pandemic, or the potential impact of a group that was offline becoming online during the pandemic. Alternatively, it may be that the design of the survey, the level of missing data, and small response rate may have impacted the results.

Similarly, H2.2, which predicted multiple online group membership would positively predict social support, which would negatively predict loneliness, which would predict better well-being, could not to investigated through further analysis due to the lack of association between online multiple group membership and well-being variables, and a lack of power due to the small sample size. Within the SIAH literature, previous exploration into the association between online identification and well-being in a university student sample demonstrated correlational support; however, when included in hierarchical regression analysis it was not significantly associated (McIntyre et al., 2018). As the study by McIntyre et al. (2018) was conducted prior to the pandemic, it would suggest that neither the pandemic nor the sample size were a singular influence on the lack of association being online identification and well-being seen in the present study.

Alternatively, it may be that online group membership may work in similar but different ways to offline group membership that has been found within the SIAH literature, as seen in Draper and Dingle (2021) and the indirect-only mediations within Study 1, as identification with the online group was a predictor of the social support received from the online group, and loneliness, which was a predictor of well-being. For H2.3, it was predicted that greater social support (both provided and received) within online group memberships would be associated with greater levels of identification with other university students. Only the social support received from the online groups was positively associated with identification with other university students, which could relate to social information seeking behaviours online (Ellison et al., 2011; Thomas et al., 2020), suggesting that during times of transition, online groups may be a source of support to draw upon when developing a new identity.

For the revised H2.4 mediation, it was predicted that the relationship between multiple online group membership and adjustment to university would be mediated by identification with other university students. The mediation analysis demonstrated an indirect only mediation

effect, suggesting multiple online group membership predicted greater identification with other university students, which predicted greater adjustment to university. However, the mediation was underpowered, and so the results should be interpreted with caution. Keeping that in mind, this finding is in line with previous research, suggesting that greater identification with university friendship groups could be beneficial for university students (McIntyre et al., 2018; Thomas et al., 2020). Identification with university friendship groups has previously been found to be the strongest predictor of mental health within a university student sample (McIntyre et al., 2018). The present findings extend this, suggesting that online group membership could be utilised to develop identification with other university students. When considering the qualitative findings of the present study in relation to this finding, participants raised feeling unprepared for the transition to university, which was connected to their experience of online learning prior to starting university. It was felt that connection with peers had been limited prior to the transition, and their online learning experience lacked support. Consequently, participants had been worried that their university experience would not be as expected. Together, the quantitative and qualitative findings would suggest that forming connections online with other university students may aid in adjusting to university.

When exploring the revised H2.4 moderation, the interaction between multiple online group membership and group compatibility did not predict identification with other university students. This was unexpected, as previous research has demonstrated how group compatibility can influence successful transitional periods, through supporting the development of a new identity, and impact well-being (Iyer et al., 2009; Cruwys et al., 2020), and that university students use social media to develop new connections and maintain existing offline connections (Ng et al., 2018; Thomas et al., 2020). Again, this moderation was underpowered, although it may be that the hypothesised effect may not have been seen until later in the year, as at time one, participants reported a mean score of 4.66 (SD = 1.60) for

identification with other university students, suggesting participants did not yet reach the threshold for identification (a score of 5 or more, Sani et al., 2015), which may indicate their new student identity still forming and requiring resources to develop (Cruwys et al., 2019; Cruwys et al., 2020). This theorised explanation could align with that proposed by Cruwys et al. (2020), which suggested when multiple group membership was not associated with new identity gain for international students experiencing the transition to university, this may be due to the fear of identity loss following the transition. In the current study, participants had described within the content analysis the difficulties encountered trying to maintain existing offline group memberships online during the pandemic and transition to university. This may lead to focusing on maintaining these relationships, rather than developing their new student identity, especially if considered incompatible (Cruwys et al., 2020; Haslam et al., 2021). Therefore, it is of importance to consider how the student identity may be developed into a 'quality' connection (Evans et al., 2022), that is a compatible connection, while supporting the continued maintenance of exiting group memberships, both online and offline.

It was predicted that there would be a difference in the levels of loneliness experienced by international students, domestic students, and those that moved away from home and those that stayed at home for university (H2.5). However, no significant differences were found between groups and H2.5 was not supported. This was unexpected, as previous studies have demonstrated both domestic students having reported higher levels of loneliness when compared to international students (Dingle et al., 2022), and that loneliness experienced by international students has many distressing aspects and was linked to feeling disconnected following the transition (Zheng et al., 2023). Although, whether students experienced a change of residence has previously been found to not have an association with loneliness, with the suggestion that students adjust to this (Diehl et al., 2018), following the pandemic, those who reported moving from home to start university reported greater loneliness (Brett et al., 2023).

It was suggested that a possible reason for this is that students who remain at home while starting university encounter challenges when trying to develop relationships with other students, but are able to easily maintain existing group memberships (Brett et al., 2023). In relation to the current study, it may be that the transition to university was an isolating transition for each group of participants (Evans et al., 2022), due to the context of the pandemic whereby participants were isolated from existing group memberships while finding it difficult to develop new group memberships following restrictions on socialising. This could however also be attributed to the unequal group numbers within the analysis.

Study 2 aimed to address the need for further longitudinal research into the experience of loneliness in young adults (Department for Digital, Culture, Media & Sport, 2023); however, this was not possible due to the small sample size recruited. The small sample size impacted the analyses conducted, highlighting a limitation of the study. Despite the small sample size, Wilcoxon Signed Rank tests were used to explore H2.6, comparing differences in group memberships and well-being scores during the transition to university and 6 months later. H2.6 was not supported as no differences were found but this may have been impacted again by the sample size. Alternatively, within a systematic review of well-being reported by university students during the pandemic, while there was a significant decrease in the well-being reported at the start of the pandemic, studies conducted later in the pandemic, similar to the present study, were reported to demonstrate mixed findings, with some increased well-being reported and others reporting no significant differences in well-being (Lemyre et al., 2023).

Finally, the content analysis provided qualitative insight into social connectedness and educational experiences during the COVID-19 pandemic. The four themes developed suggested online group membership may be used to supplement social connectivity for young adults experiencing the transition to university following the COVID-19 pandemic (Ellison et al., 2011; Iyer et al., 2009), but in doing so it can be simultaneously easy and difficult, that it

can be a much needed method of connection while in-person methods are unavailable but missed (Dunbar, 2012), and that despite the ability to connect online, there was also a desire to withdraw socially and an awareness of poor mental health (Achterbergh et al., 2020; Thomas et al., 2020). The impact of the pandemic on educational experiences were social, as well as academic. While online learning was an adjustment, it was also viewed as solitary, and participants missed peer connections (Truong et al., 2024). The loss of 'normal' preparations for university, such as visiting the campus on an open day, meeting peers in-person, and attending freshers week, meant participants felt unprepared for university and feared missing out on a 'normal' university experience (Dingle et al., 2022). This may reflect the levels of dissatisfaction reported by students regarding their social experience of university, as it has previously been reported that students were dissatisfied due to limited opportunities for socialising (ONS, 2020).

Conclusion

In conclusion, the present study sought to explore the relationship between multiple online group membership and well-being, for students who experienced the transition to university during the COVID-19 pandemic. The inclusion of identification with multiple online groups within the study is novel, providing insight into how online group memberships may contribute to the transitional experience of starting university, with a focus on how online group memberships may be utilised within the SIMIC. Quantitatively, partial correlations demonstrated hypothesised relationships between some of the variables, with H2.3 partially supported. From this, it could be suggested that online groups, most commonly family, friends, and education-based groups, may be used to seek support during a transitional period, which may help with the development of a new identity. It could be argued that it is the online nature of the group contributing to the findings not supporting those previously established within the SIAH literature, which has mainly explored offline groups previously. However, it could also

be argued that these relationships for online groups should be explored further, as the small sample size may have contributed to these findings, as the previously recognised relationships for offline groups within the SIAH were not found within this sample either, highlighting the potential impact of the pandemic on group membership overall. The findings partially supported H2.4, suggesting it may be beneficial for university students to access their online group memberships during the transition to university to develop a sense of shared identity with other students which would in turn support their adjustment to the transition. Qualitatively, the current findings suggest that participants were conscious of the need to form new connections to ease adjustment, seeking these online, while using online connections to maintain existing relationships that could not be maintained in-person, in reflection of SIMIC. The COVID-19 pandemic and resultant restrictions were barriers to forming new group memberships and maintaining existing group memberships during the transition, which impacted personal mental health and highlighted the mental health of others. The findings demonstrated both the usefulness and perceived limitations of online connectedness, suggesting online groups may have a role within the SIMIC, but this needs to be explored further.

Chapter 7. Study 3: Exploring the integration of online and offline social groups for young adults following the transition to university: A mixed-methods study

Chapter Overview

Studies 1 and 2 provided quantitative insight into how online group membership may be associated with health, well-being, and loneliness, with the social support received from online groups emerging as a key variable. In Study 1, cross-sectional support for online groups acting as a Social Cure was demonstrated, as identification with an online group predicted greater support received from the group, which predicted lower loneliness and higher SWL. In Study 2, the social support received from online group memberships was positively associated with greater identification with other university students, suggesting that online group membership may be supportive in the transition to university, through developing a sense of belonging and new student identity (although the majority of the sample had reported not identifying with other university students at time one). Study 2 built on Study 1, through the inclusion of offline group membership to explore whether there was an additive effect of "the more, the merrier" in terms of multiple online and offline group membership, and to see whether online group membership contributed to this process (Chang et al., 2016; Iyer et al., 2009). However, Study 2 unexpectedly found no association between online and offline group membership and the well-being variables, possibly suggesting the COVID-19 pandemic was disruptive to social networks, both online and offline. This was supported by the qualitative insights provided by Studies 1 and 2 into online group membership during the COVID-19 pandemic, with the findings suggesting young adults found it difficult to balance the desire to isolate from connections and the need to connect with others. While online communication was viewed positively as a means of maintaining connections, there were difficulties within this, and so in-person communication was missed. As such, these findings raised further questions as to how online group memberships can contribute to Social Cure processes, how

online group memberships may integrate with offline group memberships, and what influence young adults felt the COVID-19 pandemic had on their social group memberships. Therefore, Study 3 aims to build on the previous studies through a mixed methods exploration of young adults' experiences of their online and offline group memberships during this period, to provide context and further insight into the previous findings.

This final study had the aim of exploring the online and offline social groups of young adults, who experienced the transition to university following the start of the COVID-19 pandemic, and their experience of loneliness. It was a mixed methods study, involving a semi-structured interview and, within the interview, online Social Identity Mapping (oSIM; Bentley et al., 2019; Cruwys et al., 2016).

The oSIM was used to quantitatively explore the composition and use of online and offline groups for young adults (Bentley et al., 2019), with the interview qualitatively expanding on the make-up of participants social groups and exploring their experiences of the transition to university during the COVID-19 pandemic. Theoretically-guided thematic analysis, using SIAH as a conceptual framework, was carried out to explore potential social identity processes within online group membership and participant's social networks as a whole, exploring their experiences within their online and offline group memberships following the transition to university. Combining the oSIM with the semi-structured interview allowed for the collection of qualitative and quantitative data to provide greater insight into the relationship between participants online and offline worlds, how and when both aspects are used, and their perceptions of their online and offline social networks in relation to their experiences of loneliness.

The chapter will initially provide an overview of the study rationale and methods, going on to outline the quantitative analysis of the oSIM data, and then the qualitative analysis of the interview data. The findings and conclusions drawn will then be discussed.

Study 3 Rationale

The current study aimed to expand on the findings of Studies 1 and 2, through the qualitative exploration of the following research question:

RQ1: Does online group membership impact the mental health, well-being and experience of loneliness of young adults aged 18-24?

In relation to RQ1, Study 1a explored the relationships between identification with a salient online group and well-being variables, in a pre-pandemic sample, with the findings demonstrating an indirect-only mediation effect, with greater identification with the salient online group predicting greater social support received from the salient online group, which predicted lower reported levels of loneliness, which predicted higher SWL. This would suggest that online group membership may provide the psychological resources (such as social support) that offline group memberships provide, suggesting evidence of the Social Cure within online groups (Haslam et al., 2018). Similarly, Study 1b explored the relationships between identification with a salient online group and well-being variables, in a post-pandemic sample, with another indirect-only mediation found. Again, identification with the salient online group predicted greater social support received, which predicted lower reported levels of loneliness, which predicted higher SWL, providing further support for SIAH processes occurring within online groups (Haslam et al., 2018). Study 2 included offline group memberships, as well as multiple online group memberships, in the exploration of whether online group membership impacted the health, well-being, and loneliness of young adults experiencing the transition to university. However, as outlined above, online and offline group membership were not significantly associated with the well-being variables. This might be due to the COVID-19

pandemic, and so the impact of the pandemic on social group membership and well-being became of importance to consider within the present study. Together, the mixed findings from the previous two studies, coupled with the context of the pandemic, may suggest that while online group memberships may afford similar psychological resources to those of offline group memberships, there are still questions remaining as to when and how these Social Cure processes occur online. Therefore, Study 3 aimed to further investigate RQ1 through the qualitative exploration of how young adults perceive their online groups influence their well-being and loneliness.

As previously highlighted, the psychological resources provided by social identities can positively impact health, well-being and loneliness (Greenaway et al., 2016; Haslam et al., 2018). Investigating the role of online groups and whether these can contribute in such a way as offline can is a central aim of this thesis. As such, oSIM was utilised to explore the interconnection between online and offline groups. The oSIM aims to capture several different social identity processes within a single method (Bentley et al., 2019) and it was felt that this would be an appropriate tool to explore the composition of online and offline groups and the connections between them. The SIA literature seems to consider online and offline groups as distinct entities, as reflected in previous initial research into online identification (Draper & Dingle, 2021; Finn et al., 2023; McIntyre et al., 2018). However, the cyberpsychology literature suggests that it would be more appropriate to consider online and offline groups on a continuum, as most online connections are known offline (boyd & Ellison, 2007; Reich et al., 2012). Therefore, it was decided that participants in the current study would be asked to indicate whether their social groups were considered to be online, offline, or more reflective of this continuum during the oSIM task. This could be supported by the findings of Studies 1 and 2, with very few groups reported to be solely online or offline, and the reported use of online communication to maintain a connection with an offline group. Furthermore, there is a lack of

understanding as to how university students consider their online and offline identities during the transition to university and the integration of these identities (Thomas et al., 2017). As such, it was considered important to explore whether online group membership supplement social connectivity for young adults further in the current study.

The transition to university usually creates a period of adjustment and changes in group memberships, wherein it is important to maintain social connections and develop new connections, allowing for the development of a new identity. Being able to do so can be protective for wellbeing, as outlined in the SIMIC (Haslam et al., 2008; Iyer et al., 2009; Jetten et al., 2009). However, while there has been previous research suggesting social media to be a supportive tool within transitions for young adults, there is less understanding as to *how* it is used in a supportive way (Thomas et al., 2017).

Social internet use can maintain existing relationships and develop new relationships during the transition to university (Thomas et al., 2020). Although, Yang and Brown (2013) argued that those using Facebook to form new connections were more likely to report greater loneliness, with those using Facebook to maintain existing connections reporting lower loneliness, as it facilitated greater social adjustment at university. However, there has been less research into the development of new connections and the balance between new and existing connections (Thomas et al., 2017). Furthermore, there has been limited research into the application of SIMIC with regard to how young adults respond to disruption within their social network (Hawkins et al., 2024). Therefore, the current study aims to apply SIAH and SIMIC to the exploration of how online group membership is used by young adults during this period of transition.

The transition to university has also been associated with the experience of loneliness. For many young adults in recent years, the transition to university was during or following the pandemic. Within the context of the pandemic, the transition was accompanied by the loss of

the physical campus environment and limited opportunities for offline interactions, with research suggesting this may impact on the development of peer relationships and sense of belonging at university (Kyne & Thompson, 2020; Pownall et al., 2022). As such, the present study aimed to explore the transition to university following the pandemic, exploring the role of online group memberships within the processes of identity change for young adults, by qualitatively addressing the following research question:

RQ2: Does online group membership supplement social connectivity for young adults aged 18-24 when experiencing the transition to university?

With regard to RQ2, Study 2 quantitatively found no associations between online group membership, offline group membership, and the well-being variables. However, qualitatively, young adults described online groups supplementing offline connections, for maintaining existing connections and developing new connections during the transition to university. This would suggest online groups may follow similar pathways to offline groups in SIMIC, though this would require further exploration to gain greater insight. The unexpected quantitative findings also justify further qualitative exploration in the final study as to why social group membership was not associated with well-being during this period.

As highlighted previously, loneliness has been associated with periods of transition, with the SIAH exploring the impact of both planned (e.g., retirement; Steffens et al., 2016b) and unplanned (e.g., trauma; Muldoon et al., 2019) transitions on group memberships (Cruwys et al., 2021). The participants of this study experienced the planned transition of going to university, situated within the collective crisis of the COVID-19 pandemic (Drury et al., 2020), which together may be overwhelming for young adults to manage multiple stressors (Graupensperger et al., 2022). Starting university is a planned transitional period which can accompany, for some, the transition in to emerging adulthood, potential changes in social groups and potential changes in location (Repo et al., 2023). For many people, the pandemic

involved the potential experiences of self-isolating, changes in group memberships, increased online communication, changes within work/education, job loss, and bereavement (Repo et al., 2023). Thinking about the COVID-19 pandemic in relation to the SIA, the pandemic may be considered to be a collective crisis as it was a period of social disruption and threat (Bowe et al., 2021; Stevenson et al., 2021), during which people were able to share social support and new social norms to behave "as one" (Drury, 2018), to develop collective continuity, and maintain shared identities to help with resilience in the situation (Elcheroth & Drury, 2020). This period presented threats to social connectedness, with this being of further significance given the association between loneliness and poor health, and loneliness being of higher prevalence within young adults (Hawkley et al., 2022). Research within the SIAH indicates that social identification has been associated with lower levels of loneliness (McIntyre et al., 2018; McNamara et al., 2021), though the effects of online group identification on loneliness have yet to be similarly explored and understood.

Additionally, there has been limited qualitative research into the experience of loneliness for young adults (Kirwan et al., 2023), highlighting the contribution of Study 3. In recent research, loneliness was considered by young adults to be inevitable when entering emerging adulthood due to transitional factors such as starting university, as it was seen as a period of vulnerability which altered existing relationships (Kirwan et al., 2023). Kirwan et al. (2023) also highlighted the complexity of feeling alone despite a lack of isolation, with young adults describing feeling concerned that this may be misunderstood by those around them and counter the societal expectation of this being a highly social period of life. Furthermore, loneliness was influenced by the social comparisons made by young adults, especially using social media, to judge the social success of themselves and others (Fardghassemi & Joffe, 2022; Kirwan et al., 2023). This supported the previous findings of Fardghassemi and Joffe (2021), that comparing the social experiences of others seen online created a sense of isolation,

exclusion, and loneliness, which impacted sense of self-worth. However, technology was also considered to be a coping mechanism for loneliness, through providing distraction and an escape, as well as it being a convenient method of connecting with social groups (Fardghassemi & Joffe, 2021).

The impact of COVID-19 on young adults has been wide reaching, with young adults experiencing worsened health behaviours such as sedentariness, increased alcohol and fat intake and poorer sleep quality (Czenczek-Lewandowska et al., 2021), and increased loneliness and depression (Lee et al., 2020). Unexpectedly, in one study the increase in loneliness was greater for those who reported higher social support and more concern about the impact of COVID-19 on their social relationships (Lee et al., 2020). This may be due to the level of disruption caused by the pandemic that was encountered by those with stronger social networks, which may have highlighted the loneliness experienced to a greater extent (Lee et al., 2020). Graupensperger et al. (2022) explored COVID-19 related stressors, such as work, finances, social, and illness, related to depression and anxiety, with social stressors more likely to predict a greater increase in depression and anxiety. These findings demonstrate the importance of understanding the social group memberships of young adults during the COVID-19 pandemic, as it may be fundamental for well-being (Graupensperger et al., 2022). As such, the following research question will aim to be addressed in the present study:

RQ3: How has Covid-19 shaped online group membership and loneliness for young adults aged 18-24 who experienced the transition to university following the pandemic?

Method

Design

The study was a qualitative, semi-structured interview study, which explored participants experiences of starting university, their use of online and offline groups, and their social connectedness during the pandemic. Within the interview, a mapping exercise using

oSIM was also carried out, which collected quantitative data. oSIM asked participants map social groups and report group characteristics (Cruwys et al., 2016).

Participants

A sample of 30 participants were recruited in this study (24 Female, mean age 20.6 years old). The inclusion criteria for the study were those aged 18-24, be a member of at least one online group, and to have started their undergraduate study within the previous two years, to explore the experiences of students who started university in varying levels of restrictions following the start of the COVID-19 pandemic (Richardson et al., 2024). 25 of the participants were domestic (UK) students and 26 participants moved from home to start university. When asked about their current living arrangements while at university, 9 were living off campus in shared student housing, 9 were living with friends and 4 were living alone. Please see Appendix XII for further details of participants demographics.

Two methods of recruitment were used. Method one - an ethics amendment was submitted to include a question in the Study 2b survey, asking whether participants would be interested in taking part in an interview study (Study 3), exploring their experiences of starting university and their use of online and offline groups during this time. If interested, participants had the option to share their email address to be contacted with further information about the study. Nine people expressed interest in the interview and were contacted via email with the participant information sheet. Method two - adverts detailing study information were placed around the campus of NTU on noticeboards and online, through the use of the Psychology SONA system and Microsoft Teams posts. The study aimed to recruit first- and second-year undergraduate students (when recruitment began in July 2022. The adverts were changed to second- and third-year students during September 2022, to reflect the sample progressing through their education), as to recruit those who started undergraduate study in September-October 2020 or 2021. Online adverts were also shared on social media (Facebook), using

online groups aimed at the target sample, for example student Facebook groups for Universities across the UK. A total of 15 Facebook groups allowed the study advert to be posted (out of a total of 149 contacted), with the aim of regularly re-posting the advert. After initially posting the study advert in the online groups, there was a fair amount of interest in the study (62 email addresses 'signing-up' to be contacted about the interview). However, it became clear that many of these email addresses were fraudulent, with this method of recruitment not pursued further. Participant recruitment began in July 2022, ending in November 2022.

In Study 3, participants were offered the choice of receiving either a £15 Amazon voucher, or (if they were a Psychology student at NTU) they could choose to receive 9 SONA credits.

Procedure and materials

Favourable ethical review was obtained from NTU, Schools of Business, Law and Social Sciences Research Ethics Committee and the study followed the ethical guidelines outlined by the BPS (BPS, 2021). Participants were required to read through the participant information sheet prior to consenting to take part in the study. Within the sheet, participants were informed that their participation was voluntary and could withdraw at any point during the interview and for up to two weeks following the interview and their data would not be used. If they were to withdraw following this two-week period, their data may have been used in the analysis; however, their data would have been removed from the central dataset. Participants were informed that the interview would be audio and video recorded, and were asked to consider an appropriate location for the interview (e.g. somewhere they were comfortable discussing their social group and highlighting the option of blurring their background for privacy). Participants did not have to answer any questions they did not wish to. Participants signed the consent form prior to taking part and this was confirmed verbally before starting the interview. Following the interview, participants received a debrief form which included the

contact details of the researcher and the director of studies. It also provided the contact information for a charity that participants could get in touch with to discuss any issues that may arise after the interview.

The mean interview length was 67 minutes (ranging from 38 to 139 minutes). All interviews were carried out online, over Microsoft Teams, making use of the recording and transcription functions within the software. The use of Microsoft Teams also allowed participants to take part in the interview in a setting where they felt comfortable discussing their social connections and allowed them to blur their background for privacy, or have their camera turned off.

The following three sections outline the materials used within the study:

Demographics survey: Participants were directed to the participant information sheet and following this, the consent form (please refer to Appendix IX-X). Within the survey, participants were initially asked to create a unique identifier code, which would allow their survey responses to be located, should there be any issue (e.g. withdrawal request). Demographic information, including gender, age, ethnicity, whether they had moved from home to start university, their current living arrangements, and whether they were a UK or an international student, were collected. The survey also included a single item measure of group identification (Postmes et al., 2013), where participants were asked 'I identify with other university students' and responded on a seven-point likert scale from '1 – Not at all' to '7 – Agree completely', and 'Prefer not to answer' was added as an option. This was to be used both within the descriptive statistics in relation to the oSIM and as a prompt within the interview, as to provide an understanding of and context to the sample in terms of their university identification and what that meant to them (Kirwan et al., 2023).

Semi-structured interview: The interview explored the transition to university, the online and offline groups within a participant's social network, and their experience of the pandemic. The interview schedule was developed from reviewing relevant literature from the SIAH, and how online groups were utilised during the transition to university. In line with previous work exploring loneliness in young people, the transition to university was the initial topic, to help put participants at ease within the interview (Verity et al., 2021). Questions focused on the different social groups participants belonged to prior to and following the start of university, exploring the maintenance of existing group memberships and development of new ones, in line with SIMIC (Iyer et al., 2009), with the inclusion of online groups. For example, "please can you tell me about your experiences of using online and offline groups during this period?". The oSIM was then carried out, as to allow participants to consider their online and offline group memberships and reflect on their social identity network. The oSIM has previously been used as a qualitative tool within an interview (Cubis et al., 2023; Streete, 2020), alongside its intended quantitative data collection, to gain greater understanding of social networks. Following this, participants were asked about their perceptions of offline and online groups, to gain insight into their groups outside of the transition period. For example, "what would you say are the benefits of belonging to the group in an online context?". Finally, participants were asked about their experiences of staying connected during the pandemic e.g., "how has COVID-19 affected your social connectedness?" (McKinlay et al., 2022). Participants were not directly asked about loneliness (Von Soest et al., 2020), unless the participant themselves brought up the topic. This was felt important due to the stigma perceived by young adults in relation to the experience of loneliness, as the shame attached to loneliness can affect the truthfulness of responses when asked about loneliness (Barreto et al., 2022). It was also an ethical consideration to reduce any potential discomfort, as participants only brought up the topic themselves suggesting a level of comfort in doing so. Neutral

prompts such as "Can you tell me more about this?" were also used to follow-up on discussion point, informed by Verity et al. (2021). Please refer to Appendix XII for the interview schedule.

Online Social Identity Mapping: The oSIM was included within the interview, to facilitate discussion surrounding participants online and offline groups. oSIM was created as a method of reflecting on one's social groups, capturing constructs of social identity and the interrelationship between groups (Bentley et al., 2019; Cruwys et al., 2016). The method has been validated (Bentley et al., 2019; Cruwys et al., 2016), with the online version allowing participants control over creating their map, alongside the immediate collation of map data. The programme is customisable, allowing the inclusion of constructs relevant to the research question. Participants created their own map through which their online and offline groups were depicted, and participants rated each of the groups on five scales (such as "how much support do you receive from this group?") and captured the social network as a whole (i.e. group compatibility) (Please see Table 7.1). Participants were also asked to colour code the groups to illustrate whether the group was an online or offline group, or whether the group could not be classified as one or the other, as it was considered to be both online and offline. These categories of "online", "offline", and "cannot classify" were chosen to allow the participant to define the nature of their groups in the context of the online-offline divide. The variable of 'supergroup' was calculated from the oSIM variables which have previously predicted well-being (Bentley et al., 2019). These variables included positivity, representativeness, support, engagement, compatibility, and importance (Bentley et al., 2019).

Table 7.1. oSIM questions and scoring information

Measure	Scoring	Example
Group positivity	1-10	How positive they feel about the group (1 - not at all, 10 - very positive)
Support received	1-10	How much support they receive from the group (1 – none, 10 – a lot of support)

Representativeness	1-10	How typical they feel they are of their group (1 – not at all, 10 – very typical)
Engagement with the group	0-30	How many days in a month they engage with the group (0 - no engagement, 30 - daily engagement)
Percentage of activities online	0-100	The percentage of activities with the group that were online, versus face-to-face, was measured on a sliding scale, ranging from '0 – online only' to '100 – face-to-face only'.
Online, offline, cannot classify	Colour-coded	Blue - online, green - cannot classify, orange - offline
Group importance	High, moderate, low importance	Each circle can be sized to represent the importance of the group (the larger the circle, the higher the importance)
Group similarity	Distance between groups	Each circle could be moved to represent how similar the groups are (the closer the circles, the more similar the groups are to each other)
Group compatibility	Very compatible, Compatible, Incompatible, Very Incompatible	The lines between circles would be colour-coded depending on response (e.g. red for very incompatible).
Number of groups	Number of circles	The total number of groups participants reported being a member of
Group type diversity	Names of groups	The number of distinct group types to create a diversity score
Supergroup	A group of high importance, with above the mid-point scores for positivity, representativeness, support, and engagement, with the majority of connections between groups being compatible	The number of groups considered to be a supergroup

Participants were given a brief verbal description of the process of creating their map as they read through the written instructions within the programme, with further clarification offered when needed. Please refer to Appendix XII for the instructions given regarding the oSIM. Participants were asked to provide further insight into their answers within the oSIM through follow-up questions (e.g. "in what way is this group important to you"). This was to

provide a deeper insight into the make-up of the social networks depicted in the maps, providing qualitative context for the quantitative data (Cubis et al., 2023; Streete, 2020) to assist in addressing RQ2 and RQ3.

Online Social Identity Mapping

The following section will focus on the oSIM, outlining the procedure of data analysis, the quantitative findings, and a summary of the results.

Quantitative Analysis Procedure: Descriptive statistics were calculated using SPSS (version 26). These explored the number of online and offline groups, positive groups, supportive groups, contact with groups, representative groups, and group compatibility.

oSIM Descriptive Statistics: A total of 197 groups were reported by the 30 participants, with participants reporting an average of 6.57 (SD = 2.28) group memberships, ranging from 4 to 12 groups reported per participant. These groups were then recategorized into 23 group types, to follow the group type categories used within the earlier studies in the thesis (developed by Buglass et al., 2016; Binder et al., 2012; McCarty et al., 2001). These group type categories consisted of family, friends, local interest/community, identity/relationships, spiritual/religious, food, funny, buy and sell, school/education, games, businesses, support, health and fitness, hobbies/leisure, professional, parenting, news/politics, travel, science/technology, arts and culture, style, sport, other. To provide examples of distinctions between groups, if participants reported a group named 'university student' this was categorised as an 'identity/relationships' group, as they were reporting their identity as a university student, whereas if a group was named 'university course group chat' this was categorised as 'school/education' as it related to a university group. The most common group type reported was 'friends', with 83 friendship groups reported across the 30 participants. Please refer to Table 7.2.

Table 7.2. Frequency of group type, and of each group being reported to be online, offline or cannot classify

Group Type	Frequency	Online	Offline	Cannot Classify
Friends	83	26	39	18
Family	36	13	13	10
Hobbies/Leisure	33	15	12	6
School/Education	24	8	10	6
Professional	10	2	6	2
Identity/Relationships	9	0	6	3
Spiritual/Religion	1	1	0	0
Health and Fitness	1	1	0	0

From these group type categories, group-type diversity was calculated as in Study 1. Group-type diversity intends to consider the potential impact of belonging to multiple different types of groups, with the suggestion that having more diverse group memberships may be beneficial for well-being (Charles et al., 2023). Group-type diversity scores ranged from 1 to 6 different group types per participant, with an average of 3.03 (SD = 1.13) diverse group types reported.

Participants reported an average proportion of 0.29 'very compatible' connections between two groups. Group compatibility was calculated as the proportion of connections between groups where it was reported to be 'very compatible' to be a member of both groups.

Participants reported being a member of an average of 2.23 (SD = 1.65) online groups, 2.83 (SD = 1.65) offline groups, and 1.50 (SD = 1.53) groups which they felt they could not classify as either online or offline (as the group was considered to be both online and offline). Participants reported an average of 1.30 (SD = 1.29) groups of low importance, 2.03 (SD = 1.30) groups of moderate importance, and 3.10 (SD = 1.21) groups of high importance. The number of important, positive, and representative groups reported in the current study were

similar to those reported in previous research, e.g. exploring group memberships of Royal Air Force personnel (White, 2021). Please see Table 7.3.

Table 7.3. Descriptive statistics for the oSIM

	Mean	SD	Range
Number of groups	6.57	2.28	4-12
Diversity of group types	3.03	1.13	1-6
Number of 'online' groups	2.23	1.65	0-9
Number of 'offline' groups	2.83	1.76	0-10
Number of groups which were 'cannot classify'	1.50	1.53	0-5
Number of important groups	3.10	1.21	1-6
Number of positive groups*	5.53	1.89	2-11
Number of representative groups*	4.17	1.68	1-8
Number of supportive groups*	4.40	1.48	2-8
Number of groups with engagement above the midpoint*	3.27	1.55	0-7
Group compatibility	0.29	0.22	0-0.83
Number of supergroups	2.03	1.47	0-5

*The marked variables had scored higher than the midpoint on the scale.

The variables in Table 7.3 indicating scores higher than the mid-point on the scale included group positivity, representative groups, supportive groups, and groups with regular engagement, indicating that on average participants felt the groups reported were positive, representative, supportive, and engaged groups. From these scores and guided by the process outlined by Bentley et al. (2019), the mid-point scores were used to create the 'supergroup' variable. A 'supergroup' was a group that scored above the mid-point in positivity, representativeness, support and engagement, that was of high importance and consisted of a majority of compatible links (Bentley et al., 2019). The present study extended the measure to

breakdown the number of supergroups that were considered by participants to be online, offline, or that could not be classified as either online or offline. Please refer to Table 7.4.

Table 7.4. An overview of the number of groups reported and the number of supergroups

Participant	Total number of groups reported	Total number of supergroups	Number of online supergroups	Number of offline supergroups	Number of cannot classify supergroups
1.	6	4	0	4	0
2.	6	1	0	1	0
3.	6	2	0	2	0
4.	4	1	0	1	0
5.	8	2	1	1	0
6.	5	1	0	1	0
7.	8	3	0	1	2
8.	11	1	0	1	0
9.	4	0	0	0	0
10.	6	3	1	0	2
11.	6	0	0	0	0
12.	12	1	1	0	0
13.	4	1	1	0	0
14.	7	3	0	0	3
15.	6	5	0	2	3
16.	6	3	1	1	1
17.	6	2	0	2	0
18.	8	3	0	0	3
19.	4	1	0	1	0
20.	11	2	0	2	0
21.	4	0	0	0	0
22.	11	0	0	0	0
23.	9	4	1	0	3
24.	6	4	2	2	0
25.	7	1	0	0	1
26.	6	2	1	1	0
27.	6	4	0	3	1
28.	5	3	2	1	0
29.	4	0	0	0	0
30.	5	4	2	2	0

This provided a holistic overview of both group quantity and quality in relation to the SIA (Bentley et al., 2019; White, 2021). As seen in Table 7.4, most supergroups were classified as offline groups (n = 29), with 13 online supergroups reported and 19 supergroups which could not be classified. The mean number of supergroups reported was 2.03, which was similar to

the number of supergroups reported in previous studies (with the mean scoring ranging from 0.77 – 2.47 across four studies; Bentley et al., 2019).

Supergroups have previously been used as a predictor of psychological outcomes (Bentley et al., 2019). Within the oSIM portion of the interview, participants were asked whether they identified with other university students (Postmes et al., 2013). The mean score of the scale was 5.37 (SD = 1.30), ranging from 2-7. To explore the relationship between the number of supergroups and identification with other university students, a Spearman's correlation was calculated. There was no significant association between the number of supergroups and identification with other university students, $rho = .05$, n = 30, $p = .79$. This may relate to the disruptive impact of the COVID-19 pandemic on the social groups of young adults, similar to the Study 2 findings.

Figure 7.1 is an example of an anonymised map created by Fara using the oSIM. The group names given by Fara have been replaced by the corresponding group type categories listed previously. Fara reported a score of 7 when asked about identifying with other university students, indicating a high level of identification. She also had 2 supergroups, one online (Family*) and one offline (Friendship*).

Figure 7.1. The anonymised map created using the oSIM by Fara
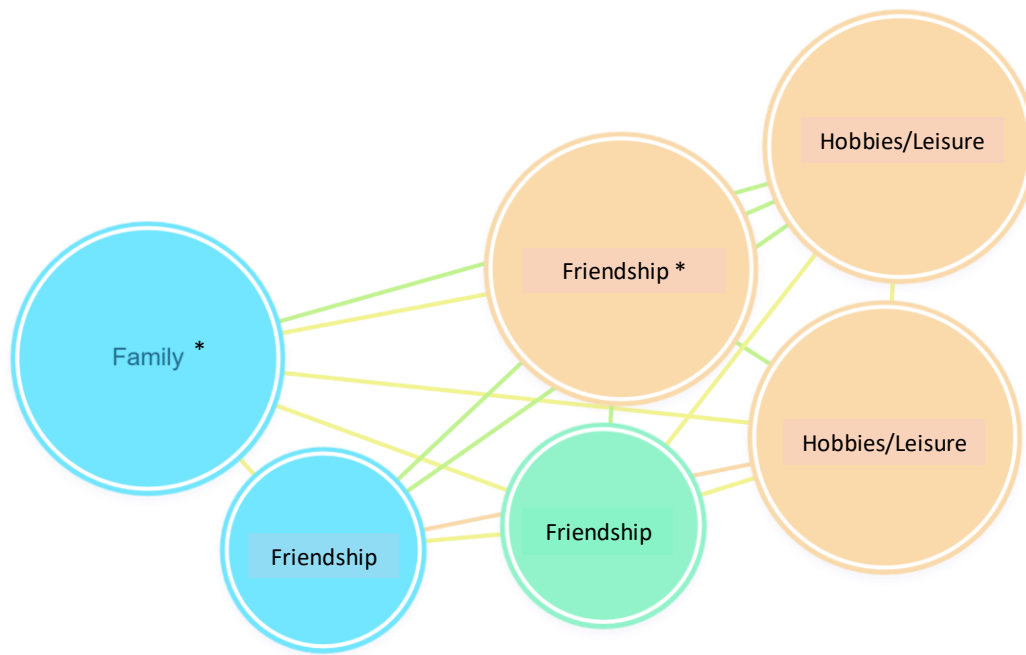
Note: The colours of the circles indicate the type of group, with blue = online, green = cannot classify, orange = offline. The size of the circles indicates the importance of the group, with bigger circles indicating greater importance. The closeness of the circles represents the similarities between the groups. The colour of the lines between the circles demonstrates the level of compatibility, with a green line for 'Very compatible', a yellow line for 'Compatible', an orange line for 'Incompatible', and a red line for 'Very Incompatible'. The * denotes a supergroup

Figure 7.1 demonstrated the number of groups Fara belonged to, whether they felt the group was considered to be an online (blue), or offline (orange), or whether they felt they could not classify the group as either online or offline (green), and how important the group was to the participant (the larger the circle, the more important the group). The map demonstrated Fara belonged to 6 groups in total, with two of these being online groups, three being offline groups, and one which could not be classified as online or offline. The lines connecting each of the groups represented how compatible Fara felt the groups were, with a green line for 'Very compatible', a yellow line for 'Compatible', an orange line for 'Incompatible', and a red line for 'Very Incompatible', with Fara reporting more compatibility between groups than incompatibility. The circles were then grouped with closeness representing similarity, with groups that were more similar grouped closer together, and groups that were dissimilar further apart. Most of the groups were grouped closely together, though Fara created a small gap

representing pre-transition and post-transition to university groups (blue groups were pre-transition).

A series of paired sampled t-tests (with Bonferroni correction for multiple tests) were conducted to explore the differences between online and offline group membership across variables collected using the oSIM.

A paired-samples t-test was conducted to investigate differences in frequency of contact between online and offline groups. There was a significant difference between frequency of contact scores of online groups ($M = 11.87$, $SD = 7.73$) and offline groups ($M = 18.50$, $SD = 6.62$), $t(26) = -3.8$, $p<.001$. The mean difference in support was -6.63, with a 95% confidence interval ranging from -10.21 to -3.05. The eta squared statistic (.36) indicated a large effect size.

There was no significant difference between positivity scores of online groups ($M = 7.18$, $SD = 2.1$) and offline groups ($M = 7.97$, $SD = 1.11$), $t(26) = -1.73$, $p = .095$. There was no significant difference between the number of highly important online groups ($M = .7$, $SD = .8$) and the number of highly important offline groups ($M = 1.5$, $SD = 1.01$), $t(29) = -3.12$, $p = .004$. There was no significant difference between support scores of online groups ($M = 6.09$, $SD = 2.34$) and offline groups ($M = 7.11$, $SD = 1.61$), $t(26) = -2.08$, $p = .048$. There was no significant difference between representativeness scores of online groups ($M = 6.18$, $SD = 2.38$) and offline groups ($M = 7.11$, $SD = 1.70$), $t(26) = -1.70$, $p = .102$.

In summary, there were no significant differences found between online and offline groups for how positive the group was rated, the support received from online and offline groups, the number of highly important online and offline groups, nor how representative the group was. There was a significant difference in the frequency of contact with online and

offline groups, with offline groups having a greater amount of contact. These findings may provide further insight into RQ2, suggesting that offline contact is important to young adults.

Summary of the quantitative findings

In conclusion, the results from the oSIM demonstrate participants belonging to between 4-12 groups, indicating multiple group membership in line with previously published social identity mapping samples (Bentley et al., 2019; Cruwys et al., 2016; White, 2021). Participants belonged to an average of 2 supergroups, suggesting these groups were positive, representative, supportive, with high engagement, compatibility, and importance, in line with similar numbers of supergroups found in previous research (in samples of adults, students, mothers and retirees, Bentley et al., 2019). The group-type diversity demonstrated that on average, participants belonged to 3 different types of groups, which was higher than that found in previous research (a mean of 0.79 in a sample of adults, Charles et al., 2023), although a similar range was found (Charles et al., 2023).

When considering the make-up of participants social networks in terms of online and offline groups, the number of online groups reported across the sample were similar numbers to the offline groups reported, with more offline supergroups. When exploring the differences between online and offline groups, greater frequency of contact with offline groups was reported. A smaller number of groups were classified as neither online nor offline. This would suggest participants may view the distinction between online and offline groups as a continuum which changes over time with flexibility, depending on the situation, rather than a fixed distinction between the two categories. For example, across the 30 maps created, 34 groups were categorised as 'Family'. Of these, 13 were considered to be online groups, 13 were considered to be offline groups, and 8 were considered to be both online and offline groups. It was subjective to each participant, as seen in Figure 7.1 with 'Family' considered to be an online group since starting university. The maps provided an interesting visual insight into

how each group was categorized on this continuum to address RQ2, with the semi-structured interviews providing an insight into why participants felt this.

Semi-structured interviews

The following section will focus on the semi-structured interviews, outlining the procedure of data analysis, the qualitative findings, and a summary of the results.

Qualitative Analysis Procedure: The interviews were audio and video recorded using Microsoft Teams, and automatically transcribed using the transcription function within the software. This study used a contextualist epistemological approach to the analysis, recognising the influence of theoretical background on the researcher (Braun & Clarke, 2022). Thematic analysis was carried out, guided by Braun and Clarke (2022) with the following analytic procedure:

Familiarisation: Data was collected by the researcher which aided in the familiarisation. Following each interview, notes were made by the interviewer regarding the interview. The transcription was initially created via the transcription function within Teams, and following the interview, the researcher reviewed the formatted transcripts against the video/audio recordings of each interview, which increased immersion. In addition, the researcher then re-read the transcripts to engage with the data further, while making notes.

Coding: The transcripts were imported into NVivo 12. Using the programme, segments of the data were selected and labelled, to group together quotes of similar interest and meaning.

Generating initial themes: Using Microsoft Excel, codes which shared concepts were clustered together to construct initial themes.

Developing and reviewing themes: Following the construction of initial themes, the dataset was revisited to ensure the themes fit with the data and reflected a pattern within the

data, considering the relationships between themes. Microsoft Excel was used to re-order the initial codes to create a flow to the story related to the research question.

Refining, defining and naming themes: A brief overview of what each theme captured was written up and themes discussed with the supervisory team.

Writing up: Each theme was written up with extracts from the data to develop a story to address the research questions.

Qualitative Analysis: Four themes were developed which captured participants experiences of online and offline group membership over the course of their university experience, following the COVID-19 pandemic: (1) Transitions as a time to evaluate your social groups, (2) Existing group memberships are the 'backbone' of support, (3) Establishing relationships online prior to transition is important, but complex, (4) The prospect of loneliness drives early friendship development. Within the overview of the themes, exemplar oSIM maps will be included to illustrate participant groups in relation to their experiences.

Transitions as a time to evaluate your social groups

Participants experienced the start of the COVID-19 pandemic before their transition to university.   This period of collective crisis meant their social groups and educational experiences were disrupted. The pandemic was a time of both loneliness and connection for participants, with participants describing experiencing how online connections were protective against loneliness and supportive during this time. For some, there was a reassuring sense of togetherness online, providing a sense of comfort, despite the isolation from their usually offline social groups. Despite physical distance, participants were able to draw from the feelings of belonging provided by their group memberships through online connection (Brown & Greenfield, 2021). This would suggest participants were able to access the resources provided by their group memberships online, in line with the SIAH (Halsam et al., 2018).

The COVID-19 pandemic highlighted the importance of staying connected, with participants describing making an effort to connect online with important others over the pandemic, so that the relationship would not suffer offline, when restrictions were to relax (McKinlay et al., 2022). Social groups being online during this time were considered by the young adults participating to be a useful tool, utilised to access their (usually) offline groups to maintain those relationships. This was highlighted by Lottie, who described the pandemic as a period of providing more time for social connections and feeling more connected through dedicated, regular time together online:

Lottie (Female, 21): I'd say that it has affected my social connection, connectedness in a good way. And not in a negative way because I just, I feel like we became more connected and I spoke to probably my mum more times and my grandparents than I usually would in normal circumstances and also with like just just general like we'd never all sit down and everyone play a board game but like during COVID it was like religious no one would miss a Friday night when it was quiz night.

This sense of prioritisation of time together online was valued by Lottie to maintain connection with an important group, despite not being able to see each other in-person (Daffern et al., 2021). It could be argued that online group membership may be seen to be facilitating identity continuity here (Jetten et al., 2009). The characterisation of the online quiz nights throughout lockdown as "religious" highlighted both the importance and routine-like nature of the activity, demonstrating the need to connect with their family during a time which could threaten connection. Through this prioritisation, Lottie found comfort in nurturing this connection online, as to maintain, and in their opinion, improve their social connectedness.

The pandemic created a period of physical distance but emotional closeness for some participants and their social groups; however, the distance also provided space from other

relationships. For some participants, the lack of offline interaction seemed to influence their feelings of closeness. Some participants described the challenges of online communication and there was a sense that it was sometimes difficult to maintain relationships online, particularly over a longer period, with Elle describing the perceived impact of COVID-19 on their friendship groups which did not fully recover (McKinlay et al., 2022), linking the increasing lack of closeness to their experience of loneliness:

Elle (Female, 19): And I kind of feel like since the pandemic my, me and my friendship group have never been as close like I feel like COVID had quite a big impact on like staying as close with my friends because obviously it like at first, we stayed in contact, things like that then yeah. Yeah. Like I said, as things progressed, it just fizzled out and then felt quite lonely.

The lack of regular, in-person contact was perceived by Elle to be a contributing factor to their sense of connection with a friendship group dwindling as the pandemic continued, which contributed to feelings of loneliness. The difficulties faced in maintaining this group during a period of uncertainty and subsequent loss of the group, rather than the maintenance of the group, impacted negatively on the well-being of the participant, highlighting the continuity pathway breaking down within the SIMIC (Iyer et al., 2009).

For others, this period of distance allowed participants to reflect on their social groups, considering which were beneficial and which were not, giving them an opportunity to place more effort into the positive relationships and begin to distance themselves from others which were not. This supports the findings of Kirwan et al. (2023), suggesting young adults view loneliness as an opportunity for growth through self-reflection, linking it to the discrepancy between the current and preferred social situation (Cacioppo et al., 2014; Peplau & Perlman, 1979), in that young adults experiencing loneliness may subsequently evaluate their unmet needs within their social groups. Emma discussed being more conscious of considering

whether to remain a member of their social groups and whether the groups were helpful or harmful:

Emma (Female, 20): I would say that varies a lot and I think it recently has changed a little bit where I've started to kind of evaluate more what I need from people in the groups that I'm in and I think that's something I'm still figuring out is like, what do I actually want from the groups that I'm in? And if a group isn't like providing what I need, is it worth staying in that group? Umm, is it actually doing more harm than good if, yeah, if I stay there.

Emma described evaluating whether each of their groups met their needs, suggesting there was a strategic period of reflection on their network, to actively design a network of social groups which were supportive and representative of themselves. However, it was unclear if this was a result of time away from usual groups during the pandemic, or in preparation for and following the transition to university. Socioemotional selectivity theory (Carstensen, 2021) outlines how there will be reduction in the size of a social network as people age, to focus on providing emotional resources to important groups (Lansford et al., 1998). This process of selectively narrowing down groups to create a positive network based on quality over quantity may be occurring in the present study, potentially because of the pandemic and an increased consciousness of mortality, or the transition to university representing the 'ending' of their life chapter prior to the transition (Carstensen, 2021). Emma described this ongoing process of evaluation, highlighting the need to consciously create a positive social network, removing themselves from groups that may damage this. For some participants, this reflection over their social groups was coupled with the anticipated potential changes in social groups because of their upcoming transition to university. Nick described distancing from an existing friendship group as almost inevitable, now that the friendship group had moved to higher education:

Nick (Male, 19): But it was like freshers, we were sharing stuff, we were talking about the new experiences that we had, but beyond that, I think we were all ready to kind of get on with our lives because I think there was no kind of social benefit to, to communicating with these people. ... I think it was, it was kind of an unspoken thing that we'd drifted apart at, when we moved to UNI. Which you know is, it is what happens.

While Nick initially engaged with the existing group early in the transitional period, as time went on, the group was considered to be incompatible with their new life, nor was he gaining anything positive from remaining a group member. The transition to university provided the opportunity for Nick to naturally distance himself from a social group which he later described in the interview as unsupportive. Once he had developed connections at university, Nick considered the loss of the existing group to be expected, as there was no "benefit" to belonging to the group. This highlighted another example of participants evaluating and then subsequently pruning their social groups to create a positive identity network. This may suggest participants were engaging in active network design, with consideration of the benefits and costs of belonging to each group and utilising group resources when needing to (Cruwys et al., 2020). As seen in Figure 7.2, Nick demonstrates the distinction between this existing friendship group and his efforts to engage with new groups at university. Nick reported a score of 5 when asked about identifying with other university students, indicating identification with other students. He also had one supergroup, which was offline.

Figure 7.2. The anonymised map created using the oSIM by Nick
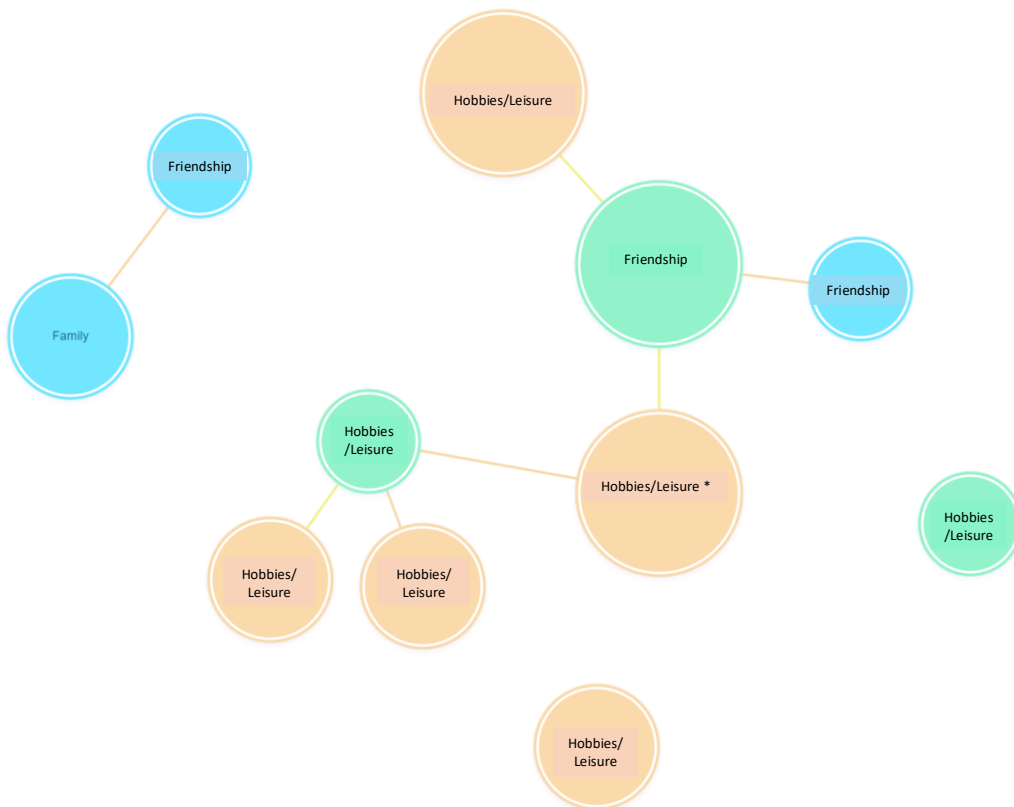
Note: The colours of the circles indicate the type of group, with blue = online, green = cannot classify, orange = offline. The size of the circles indicates the importance of the group, with bigger circles indicating greater importance. The closeness of the circles represents the similarities between the groups. The colour of the lines between the circles demonstrates the level of compatibility, with a green line for 'Very compatible', a yellow line for 'Compatible', an orange line for 'Incompatible', and a red line for 'Very Incompatible'. The * denotes a supergroup

Figure 7.2 indicated a gap in closeness between the two groups Nick belonged to prior to the transition to university, and the new groups he joined following the transition. This represented a lack of similarity between these groups, with the participant later describing joining the new groups in order to find more supportive groups that were more representative of themselves. This distinction between to pre-transition and post-transition groups was also highlighted by the size of the groups, with the existing groups sized as smaller to represent lower importance, and the new groups sized as larger to represent more importance.

This sense of transitions providing the opportunity to review existing social groups and make changes to them was related to creating a supportive network of social groups, which participants could rely on and reach out to when needed. Participants were conscious that

having a supportive, positive network of social groups surrounding them would be beneficial, with Blake outlining that the transition itself created the opportunity to get to know yourself through the groups you surround yourself with:

Blake (21): And it's also allowed me to filter out people that aren't the best fit for my life, which is a difficult thing to do for me before, because I used to get quite like attached, even if somebody was not good. But yeah, that's definitely important. So you, because once you once you have that self-care and you have the right people in your surroundings, you can really excel in whatever you're doing in your life. But if you constantly have that negative atmosphere, then it just, it will just bring you down emotionally and even in, like, whatever you're doing in life, it would just put you back. Hold you back, sorry. UM, so, yeah, I think it's definitely important to try to investigate that when you're in uni, when you're away from home and everything else from your past and other people.

Here, Blake describes how prior to the transition it was difficult to remove themselves from people who could have a detrimental impact on their well-being, but that they now consider the transitional period of starting university to be an appropriate time for others to consider the make-up of their group memberships. They described how the physical distance from existing group memberships and the metaphorical distance from "your past" created by the transition allowed for reflection and subsequent action to design a supportive network in which they could thrive, again, potentially signalling a sense of 'ending' and the impact of time horizons on this process of evaluating your groups (Carstensen, 2021).

It was felt by some that by having gone through this process of reviewing and selecting (or distancing from) their social groups, this had led to the development of a strong, positive network of group memberships from which participants could expect to have their social needs met. Participants described having a selection of groups, accessing different groups for

different needs. This may link to an awareness of the need for a diverse network, to access various resources (Charles et al., 2023), which was supported by the oSIM data. Poppy outlined how, following the changes they made to their social group memberships, they were aware that each group offered something unique in terms of supporting them and knew the importance of that diversity:

Poppy (Female, 20): I would say they all do meet my needs, just in different ways[…] Genuinely, I just think the place that I'm in now with my friends, my family. It's like the most important thing. And like it's taken me a while to get there, which is why I don't think I'd change anything cause I kind of already made those changes. And you know how I was saying earlier, just like some friendships that didn't really make me happy and stuff like that. Those are the kind of things that I would have said I wish this could change. I wish that could change, but I'm kind of in a place now where, yeah, I've done that.

Poppy described how each of their groups had been selected to remain a part of their identity network, as each offered something different and positive. Participants who used transitional periods as an opportunity to consider their social group memberships were also conscious of the impact each group had on their well-being. Poppy described a sense of contentment and positive well-being when reflecting on their creation of a positive identity network, which was reflected in their oSIM.

As seen in Figure 7.3, the map demonstrates a number of larger circles, representing important groups, grouped closely together, representing similarity between groups. The map also demonstrated a greater number of groups which reflected the online-offline continuum. Poppy reported identifying with other university students (scoring 5, Sani et al., 2012). She also had 3 supergroups.

Figure 7.3. The anonymised map created using the oSIM by Poppy
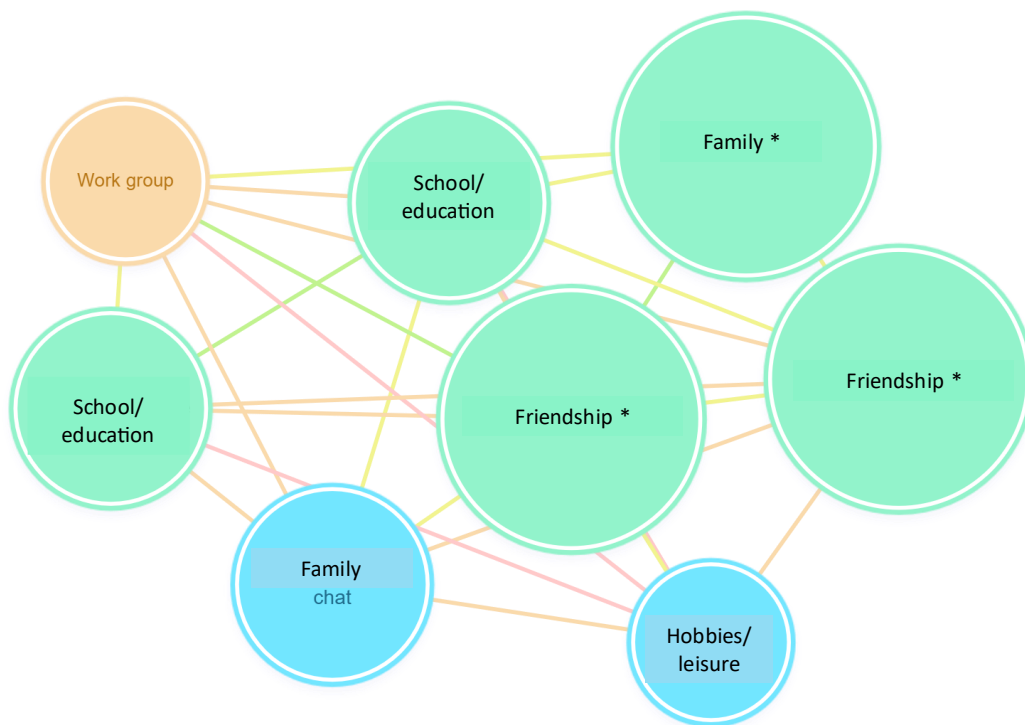
Note: The colours of the circles indicate the type of group, with blue = online, green = cannot classify, orange = offline. The size of the circles indicates the importance of the group, with bigger circles indicating greater importance. The closeness of the circles represents the similarities between the groups. The colour of the lines between the circles demonstrates the level of compatibility, with a green line for 'Very compatible', a yellow line for 'Compatible', an orange line for 'Incompatible', and a red line for 'Very Incompatible'. The * denotes a supergroup

The transition to university, accompanied by the COVID-19 pandemic, created an extended period of disruption to normality for this sample, with the impact on their group memberships considered to be both positive (perceived closeness developing) and negative (perceived loneliness developing), which was related to whether participants were able to maintain their existing connections during this time. Participants described balancing the physical distance between themselves and other group members (for example when in lockdown or away at university) with a deliberate effort to connect online to foster greater connection and maintain the relationship with important and supportive groups (McKinlay et al., 2022). Alternatively, participants took this time of physical distance as the chance to create emotional distance, recognising that the group was not beneficial to their well-being. This

period of evaluating and pruning social groups meant that participants felt they had specifically selected group memberships which they could turn to for support.

Existing group memberships are the 'backbone' of support

Following on from the above theme, having a solid basis of existing group memberships during the transition to university meant that participants had a good support network to lean on during and following the transition. The knowledge that participants had these groups supporting them, even from afar, provided confidence when going into the transition to university. This is in line with the continuity pathway in SIMIC, which outlines that maintaining existing groups may provide support during a transition (Haslam et al., 2018). Poppy discussed unexpectedly struggling with the transition to university, which may link to the disconnect between the sometimes-unrealistic expectations of what university will be like compared to the actual experience (Money et al., 2017). The transitional period has been considered to be one of socialisation prior to starting, but when experiencing it, the social aspect can be anxiety-provoking and challenging (Farrell et al., 2020). Poppy recognised that having an existing group membership to return to for support was a comfort (Richardson et al., 2024; Vasileiou et al., 2019), without which they would have struggled more with settling into their new surroundings:

Poppy (Female, 20): I would just say they would play the role of kind of like a backbone, if that makes sense like just kind of keeping me focused and just, I think just keeping me feeling a bit more normal because I just felt so ridiculous and just so like, why is this happening to me? Like what is going on, like I literally went into this so relaxed I had no expect-. Well, I did have expectations, but I guess they were more internal expectations and I was just thinking like, why is this going on like I did not expect this to happen at all. So I just felt very like strange and like, not weird, but just shocked, and I think they just gave me a sense of normality back because they were feeling the same and obviously like just being a comfort and

it was just like a yeah, they played a massive role for me because I don't, without like having that, a solid friendship group at home, I don't know how I would have done it.

The existing group provided a sense of normality in an uncertain time, which then bolstered Poppy through providing comfort, supporting their transition to university from afar (Vasileiou et al., 2019). Participants having created a good support network were inclined to focus on these relationships, to maintain this support and try and recreate this in new groups. This knowledge of what to look for in social relationships was taken forward and meant that Poppy was conscious not to settle for poor relationships:

Poppy (Female, 20): I have such a high expectation of what family friends should be like because I've grown up around this other family and it's literally like a second family to me. I always used to think it was super normal to have that but as I've got older, I realized a lot of people don't have that, but we just think it's so normal.

This added to the notion that participants were being reflective of their developing identity networks, conscious that there was a need to be aware of what new groups would add and to ensure each would have a similarly positive impact. However, a small number of participants described focusing solely on developing closeness within their existing relationships, finding themselves hesitant to branch out. These participants took comfort in the knowledge that they already had friends, but subsequently found it difficult to develop new connections. Ada voiced that her reservedness was related to becoming less social following the pandemic, and she relied on maintaining existing relationships both online and offline:

Ada (Female, 19): In terms of being social, I think after the pandemic I became less social. So like in terms of the friends I made in UNI in first year I can count them, mainly because I was very connected with all my friends, like the friend group that I made in sixth form, I was very connected with them, we went to go see each other at all our different unis

and stuff and I moved in to my student halls flat, with two of them, and so I only had to make one new friend in that specific flat.

A lack of openness to new friendships during the transition to university has been associated with making fewer friends than those who reported openness (Buote et al., 2007). Feeling less social, combined with the desire to focus on their existing groups, meant that there was little room to develop new group memberships for Ada. This may reflect and provide context to Ada's lack of identification with other university students and her high number of supergroups created using the oSIM (Figure 7.4). Ada had focused on establishing these friendships during the pandemic and following the pandemic, she didn't feel the need to expand her social groups due to the strength of her existing friendship group and the need to maintain this. This may be due to the fear of identity loss during the transition, which is of risk to social identity continuity (Cruwys et al., 2020; Iyer et al., 2009). As existing groups have been reported to be of greater importance than new groups during transitions (Cruwys et al., 2020), it may be that participants in the present study focused on maintaining these existing groups online to access much needed support, during a period where there was concern about meeting new groups due to COVID-19.

As seen in Figure 7.4, the map created by Ada outlines 6 group memberships, all of which existed prior to the transition to university which have been maintained throughout the transitional period. The majority of the circles were larger in size, demonstrating a number of important groups. Ada reported a score of 4 when asked about identifying with other university students, suggesting she did not identify with other students (needing a score of 5 or above, Sani et al., 2012). Ada had four supergroups, with three being offline and one that could not be classified as online or offline.

Figure 7.4. The anonymised map created using the oSIM by Ada
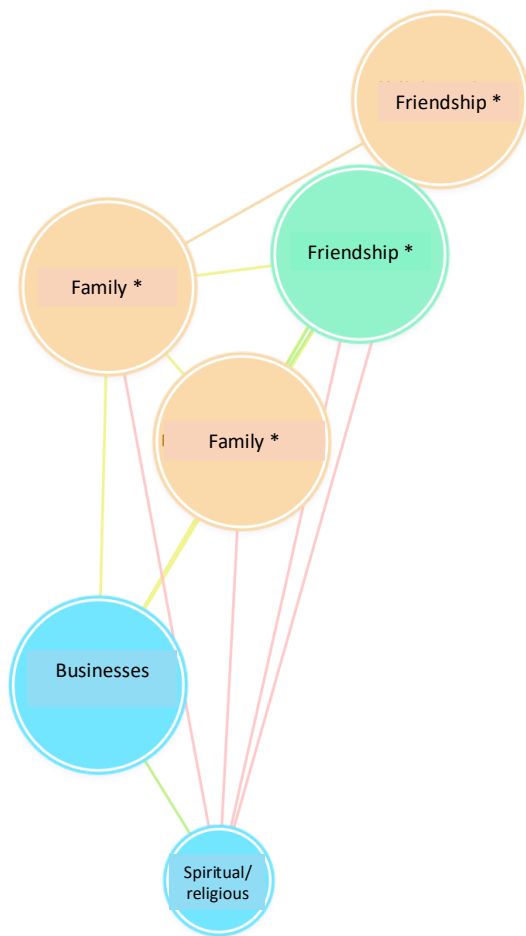
Note: The colours of the circles indicate the type of group, with blue = online, green = cannot classify, orange = offline. The size of the circles indicates the importance of the group, with bigger circles indicating greater importance. The closeness of the circles represents the similarities between the groups. The colour of the lines between the circles demonstrates the level of compatibility, with a green line for 'Very compatible', a yellow line for 'Compatible', an orange line for 'Incompatible', and a red line for 'Very Incompatible'. The * denotes a supergroup

The maintenance of existing group memberships using online groups meant that participants could access the resources provided by the group, while away from the group, removing the distance between group members. The ease of access to the groups through online communication may have also contributed to the feeling that making new friends at university may not be a priority (Thompson et al., 2021). It was felt that it would have been difficult to maintain such relationships without online interactions, especially for the international student participants. Fara described feeling as though the online group was considered almost an extension of the offline group:

Fara (Female, 22): That's why I think I rely on my social media a lot, because that's the only way I can speak to them. And yeah, the fact you can just see them like being able to see them on FaceTime and just kind of. It makes me kind of feel like we're still there face-to-face [...], I think that that's a really big benefit of being able to do that.

Fara described the importance of having an avenue of communication available to connect with their existing groups in another country. Online communication was almost comparable to face-to-face communication for Fara, with it viewed as a positive facilitator of connection and identity continuity (Ng et al., 2018). This demonstrates how social groups may exist on a continuum between the online and the offline, moving between depending on the situation and needs (Park, 2018). Being able to connect with these groups online during the transition helped with accessing support and was considered protective for mental health by participants, supporting the SIMIC continuity pathway, which outlines that maintaining existing group memberships provides access to support, impacting positively on well-being (Ng et al., 2018). This also added further support to previous findings demonstrating how online communication has been used as a means to facilitate existing offline relationships (boyd & Ellison, 2007; Thomas et al., 2017).

However, maintaining existing group memberships online were, in some instances, difficult to manage. Participants described how the ability to constantly keep in touch with existing groups and have them be able to always check in on you, was sometimes overwhelming and highlighted their homesickness (Hughes & Smail, 2015; Ng et al., 2018). Therefore, some participants described requesting a break to allow them to settle in and get to know others. Violet talked about regularly visiting home to reduce homesickness, but later recognising the need to focus on developing new relationships while knowing she could contact her family online:

Violet (Female, 20): So mostly it was like through video chats and stuff like that I'd call back home quite often because during, when I first moved out I was back and forth. But then for a period of time I just decided like I need to stay in [University City] and like properly, like put more effort into make friends

Violet described initially being reliant on the support and comfort provided by her existing group memberships, maintaining these both online and offline. However, they realised the need to gain new groups at university, in order to settle in and adjust. This was in line integrating the maintenance of an existing identity while developing a new student identity (Thomas et al., 2017). Social identity maintenance in-person was initially prioritised due homesickness; however, Violet then describes decisively focusing on developing new connections at university while maintaining existing groups online, offering a sense of balance between the two. This could link back to the fear of identity loss (Cruwys et al., 2020), but highlights how as time goes on, the need for identity gain becomes more apparent in order to aid a successful transition (Iyer et al., 2009).

The flexibility offered through online communication meant that participants were able to drop in and out of their existing group memberships as and when needed, with the support and sense of deeper connection found in long-standing group memberships being key resources accessed within online groups. This meant that participants could maintain their group memberships while creating space for new groups, using the existing groups as a basis to expand upon.

Establishing relationships online prior to transition is important, but complex

It was recommended by existing connections who had been to university that participants should begin to connect with future peers online prior to starting (DeAndrea et al., 2012). Thus, participants were aware that it would be beneficial to develop new relationships

with their potential peers prior to university to gain the "upper hand" socially. Initial connections were established online in the form of course- and accommodation-based group chats. It was recognised that while these relationships may not progress further than the group chat, it gave them a sense of 'knowing' others going into the transition. This sense of familiarity with others gained from their online groups provided participants with the chance to alleviate some anxiety surrounding the transition and provide a sense of comfort in the knowledge that they were part of the group (Thomas et al., 2017). Therefore, participants could ask other group members questions, gaining informational and emotional support, and feel less alone in the anticipation of the transition, knowing that other online group members were in a similar situation (DeAndrea et al., 2012). Amelia discussed the impact of being in the online course group, reflecting on how differently she might have felt if she were not a member:

Amelia (Female, 20): I think that it would have been a very different experience not having these group chats, cause erm especially the [subject] course one, if I wasn't a part of that I think I would feel really, really isolated and I suppose if I have any questions about like, I dunno, how do I book a moving in time slot or something, I wouldn't know who to go to but it was sort of just like, it was a non-judgemental environment, you could just ask random questions about moving to uni and you would get a genuine response, because 50 other people are probably wondering the same thing.

Amelia linked belonging to this new online group to feeling less isolated in relation to the upcoming transition, in the knowledge she could seek support from the group. There was a sense of togetherness created knowing that everyone was in the same position and there to support one another. This could be preparation for the social identity gain pathway within the SIMIC (Iyer et al., 2009), as participants were gaining a sense of what the group would be like, while seeking and receiving support from similar others. While this sense of familiarity and awareness of support was comforting to many, there were issues.

Participants discussed how they were able to gain pre-transition knowledge of names, faces, and personalities of their potential peers from profiles and interactions online, allowing them to make tentative judgements of group members (Schoenebeck et al., 2016; Thomas et al., 2017). However, participants talked about reserving judgement and subsequently feelings of closeness until meeting in-person, with the lack of in-person communication acting almost like a barrier to fully connecting with group members. Karan described how this feeling of becoming closer once you were able to meet in-person was prolonged due to COVID-19:

Karan (Male, 20): I think we would have been more close, more close quicker if we were able to meet in person like some of them are still close friends now, but that came after a long delay after like you had to wait for everything to calm down and then we could go out and meet each other like we could go out and do stuff together like you normally would as a university student.

Karan spoke of the "delay" in developing feelings of closeness, relating in-person communication to 'normality', demonstrating how online communication was a barrier for some. Richardson et al. (2024) found that for students who started university during the COVID-19 pandemic, their new university-based connections were weak and limited in number due to the restrictions on socialising. This may be due to the desire to wait until the group norms and rules of interaction had been solidified in-person (Thomas et al., 2017). This sense of closeness through in-person interaction linked to the feeling that there is a difference between how others portray themselves online compared to the reality offline, which participants were conscious of. Jo discussed the differences between how they experienced online and offline groups and how their use of online groups came from necessity rather than preference:

Jo (Female, 20): I think since the shift, since the shift of COVID to in person, I don't really talk much on group chats anymore. It's just mainly, I rely on in-person. I also found that online, everyone seems like they're your friend almost, but once restrictions lifted, no one talked in person. It's just very almost fake, almost like not real. [...] I feel like in person, you know who your friends are. You know who you can trust.

Here, Jo described their preference for in-person interaction when making new relationships. They described how some online relationships did not translate into offline relationships, with this leading to a sense of online communication equating to "fakeness" and in-person communication demonstrating trust (Fardghassemi & Joffe, 2022). This is in line with the impression management model, which would suggest that there is a motivation to control how others evaluate you and factors that influence how an impression is constructed (Leary & Kowalski, 1990). Within an online context, impression management can be developed through the content of the online post and what may be implied by others from the online post (Schoenebeck et al., 2016). It has previously been demonstrated that young adults undergoing the transition to university engage in impression management online, creating a tailored insight as to allow others to form impressions which may not be fully authentic while still being representative (Schoenebeck et al., 2016). Although there are difficulties within this, when balancing existing connections, creating a new identity and having an awareness of increasing contextual collapse through these groups merging online (Schoenebeck et al., 2016; Thomas et al., 2017). The uncertainty of who people really were offline, coupled with the perceived false sense of closeness within the online group chat was an uncomfortable contrast for Jo. This would suggest that participants were preparing for the upcoming social identity gain but were hesitant to commit to the group before truly knowing group members.

Furthermore, participants found different aspects of online communication to impact this perceived development of closeness with online group members. There was an ambiguity

to online communication, making it difficult to interpret what other group members were saying online. This subsequently made participants conscious of how they could be misinterpreted, highlighting the permanency of online communication as another factor they were mindful of (Riordan & Kreuz, 2010; Riordan et al., 2018; Symeonides & Childs, 2015). Each of these factors made it more cognisant to participants that group members were strangers they had yet to develop closeness with, as highlighted by Isabelle:

Isabelle (Female, 21): I think sometimes people tread on water a bit with what they say and do because realistically all it takes is somebody to screenshot it and put it somewhere else, which did happen to quite a few people in our group chats, which actually led to reports being made to the UNI with things that were being said and done. But like, you know, realistically you select your friends, you were in a group chat with people that you haven't particularly selected and then this is where sort of like these conflicts come from and you know, massive opinions and people saying things that they might not actually understand.

Trust in the new, online group was an issue for Isabelle, combined with the permanence of online communication, which links to concerns over being misunderstood and the potential detrimental impact of that on future interactions (Chang et al., 2020). Isabelle highlighted the distinction between a deliberately chosen friendship group and the new student cohort group chat. With the new cohort group chat, difficulties may arise due to conflicting opinions shared by others who you may not usually 'select' to be in your group. This, together with the concern about group chats having a written record which can be shared, led to conflict when sharing and/or a hesitancy to share. Fardghassemi and Joffe (2021) suggested that this fear of judgement may be associated with loneliness, through the hypervigilance to social threats when online because of being conscious of how to portray yourself. Thomas et al. (2017) found university students to be cautious when disclosing online during the initial transitional period, and drawing on the friendship formation literature, this would argue people perceived there to

be risk to sharing more than a couple of superficial topics about their life in the initial stages of friendship development as greater disclosure usually occurs later. This was also linked to the different ways young adults may 'edit' themselves online to assimilate with others (Thomas et al., 2017), when developing a new identity. Alternatively, this may link to the uncertainty about committing to the new group while it is in its formation stage online, as to potentially assess group compatibility when in-person (Iyer et al., 2009).

Related to a hesitancy to connect online, some participants talked about initially lurking within their online groups, observing group members and their interactions, but it was noted that gradually this helped with contributing more within the group as it was important to establish yourself as a group member through being active in the group chat (Sun et al., 2014). This feeling of comfort growing through observation and then contribution was linked to feeling more connected to other members, which lead to greater involvement with the group, with Rosalyn describing feeling like an established group member through their communication with the group:

Rosalyn (Prefer not to say, 22): Because I got close with individual group members, it made me feel like I had company in the group, which makes me want to talk more, which like I guess, level up my reputation in the group. So for example, if I used the chat before, no one would actually know who I am because I lurked quite a bit. But now that I'm talking more people will actually see my username and say ohh hello, how are you doing today? Or like ohh hey good morning because they know me more personally now it's because I talk more

Rosalyn described a relationship between the need to communicate with the online group to be recognised as a fellow group member by others and to feel more like a group member themselves. The phrase 'level up my reputation in the group' depicted an online gamer-like connotation to this process, while conveying the impact of greater communication

being an increased sense of belonging within the group. This may demonstrate gaining motivation to move from lurking behaviours to active behaviours, through recognising the importance of their contributions and gaining confidence in participating (Sun et al., 2014), with it possibly linked to a growing sense of identity.

Blake felt it was apparent as to who had been involved in pre-transition online groups related to university, as the relationships created online were continued offline when meeting at university. Their experience of establishing connections prior to the transition online, combined with making the transition with established relationships, was perceived to be easier than it was for others who had not:

Blake (21): I feel like loneliness and, like making friends was a lot more difficult for most people than compared to those who were more active online beforehand. [...] Unless they've come with like friends from secondary school or sixth form, which again, I also had some of those too. So. Yeah, if you if you came by yourself with no like head start then I think it would be very difficult for you to actually make any friends in your first year, in the lockdowns.

Having the "head start" through getting to know others in online groups prior to the transition meant that some students started university with a foundation to build on to develop a new identity. These students had an idea of other group members from the group chats, which were used as a springboard for new friendships as soon as they arrived at university (Buote et al., 2007). Without this background knowledge and connection, students who had not engaged with the online groups could find making new friends difficult and potentially be susceptible to loneliness. This was demonstrated in Blake's map, as seen in Figure 7.5, through the greater number of social groups reported (11 groups total), although none of these groups were supergroups. While their existing and new group memberships were relatively closely grouped

together, to represent similarity, the one exception was a friendship group from their first year that was based on situation, rather than choice, which they later distanced themselves from. This was reflected in the red 'very incompatible' lines between that group and others. Blake reported a score of 3 with regard to their sense of identification with other university students, indicating they did not identify with other students (Sani et al., 2012).

Figure 7.5. The anonymised map created using the oSIM by Blake
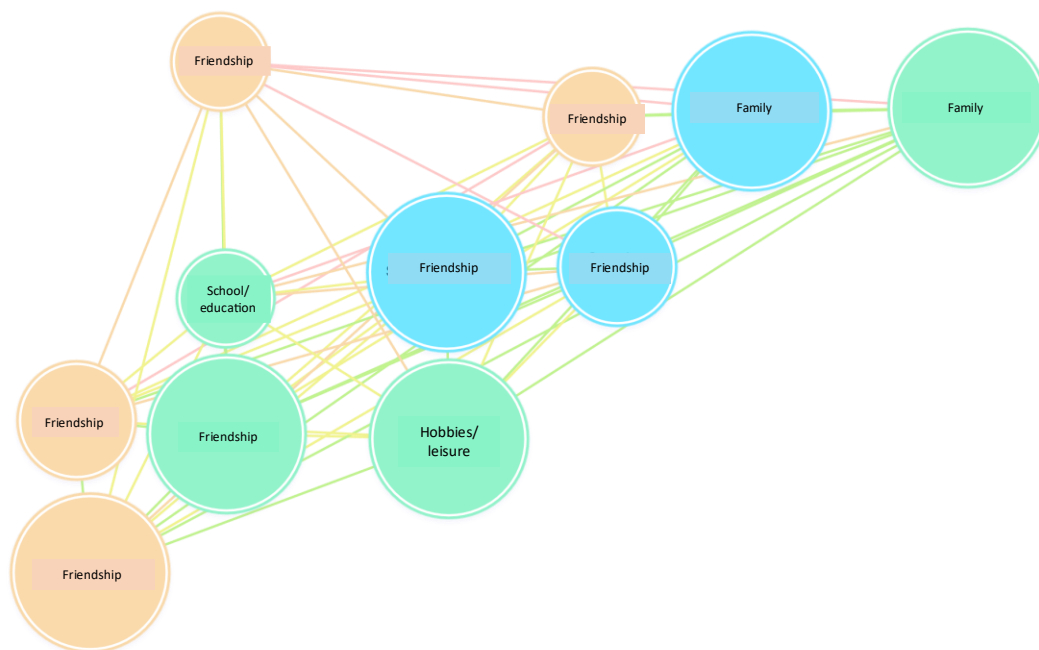
Note: The colours of the circles indicate the type of group, with blue = online, green = cannot classify, orange = offline. The size of the circles indicates the importance of the group, with bigger circles indicating greater importance. The closeness of the circles represents the similarities between the groups. The colour of the lines between the circles demonstrates the level of compatibility, with a green line for 'Very compatible', a yellow line for 'Compatible', an orange line for 'Incompatible', and a red line for 'Very Incompatible'. The * denotes a supergroup

These factors added to the idea that the new student group was forming online much sooner than the actual start of university, but there were complexities as to how to develop as a group member online and navigate online communication successfully, to create that sense of familiarity with the group that participants described as comforting going into the transition.

Another complexity to being online during the transition to university was the perceived loss of the university experience because of the COVID-19 pandemic, which in previous studies had been linked to the experience of loneliness (Richardson et al. 2024). There was a perception that a true university experience was a social experience. Participants were conscious that their experience would not match those who went to university prior to the pandemic, describing the anticipated experience they had looked forward to, contrasted with how the pandemic had shaped their experience:

Isabelle (Female, 21): It definitely impacted my university experience and definitely impact the how I viewed myself as a student and it's like it was, it kind of got to a point like, what's the point of being a student? This isn't the uni experience. This isn't what being a student is

Not being able to meet in-person and interacting online was viewed in a negative light, when compared to what was expected. Being online was seen as a barrier to establishing a student identity, and for Isabelle, this was compounded by the loss of their anticipated experience. Part of their university experience being online represented a missed opportunity for some, highlighting the difficulties navigating the transition to university during the COVID-19 pandemic (Richardson et al., 2024). Therefore, there was a sense of sadness that "this isn't what being a student is" and belonging and adjustment was delayed.

Within this theme, the process of gaining a new identity is starting, but while the online group was a starting point for this, being in-person was viewed by some to be when the process officially began, which may be participants waiting to gain a clearer insight into group compatibility from in-person communication. This was delayed by pandemic restrictions meaning the university experience continued online. This sense of the identity groundwork being developed online but established in-person is further highlighted in the next theme.

The prospect of loneliness drives early friendship development

Continuing from the previous theme, while participants joined online groups prior to the transition to university to facilitate adjustment, once at university, it was felt as though pressure increased to establish connections in-person. Lacking connections when starting in-person, following the easing of COVID-19 restrictions, created almost a delayed feeling of belonging, which was gradually eased through making connections in-person, at university. While there were challenges to acquiring new social groups during this period, participants recognised the importance of establishing these relationships. Creating a solid basis of new groups that provided support while at university was a priority for some:

Violet (Female, 20): I feel like the first few weeks or even the first whole term should be like mainly focused around building friendships and finding, especially if you moved away from home. I feel like your first kind of term should be dedicated to laying down roots and making sure that you feel secure at uni, because when you feel secure like you have people that you can turn to about your work.

Violet described the importance of dedicating time and effort to creating a network at university to support their transition, which they recognised as important for their long-term development at university. When experiencing a transition, it is important to join new groups to protect against any potentially negative effects and/or group loss, as these new groups can represent a new stage in life, growth, and a new identity (Haslam et al., 2018).

During the transition to university, participants seemed conscious of the potential for experiencing loneliness, with this acting as a driver to make friends. For Isabelle, the thought of potentially experiencing loneliness created pressure to push them to meet as many people as possible:

Isabelle (Female, 21):   I've come from far away and you have like this sort of expectation or pressure to meet lots of people. And I need to make lots of friends. And there's that fear of being lonely. And there is that risk factor that you might end up feeling lonely. And thankfully for myself that, I didn't feel lonely. [...] Connections that I made at the beginning, to then what I made in the middle and at the end of the uni, were very different, connections I actually made at the beginning fizzled out a little bit.

There was a "need to make lots of friends", combined with "that fear of being lonely", adding to the "expectation" to meet people (Sundqvist & Hemberg, 2021), all together creating the feeling of an impending deadline to secure their new identity and adapt quickly to the transition (Wilcox et al., 2005). While much research surrounding adjustment to university life has focused on academic aspects, the social aspects are of great importance to students starting university, with the fear of not integrating socially apparent (Wilcox et al., 2005). This may be due to the narrative that prospective students hear which has been "romanticized", developing an idea of what university 'should' be like, and this disconnect subsequently being internalised as "something wrong with them" (Buote et al., 2007, p.686). This finding supports that of Kirwan et al. (2023), with young adults perceiving there to a small window of time during which you can make friends in a transition and the notion that this is perceived to be a very social time. It was later recognised that a deeper sense of connection could be made outside of this imagined window of opportunity; however, at the time, it seemed as though the transitional period of starting university was a pivotal time to develop new friendships. Participants were worried if they didn't make friends during this period, they would not integrate into the new university groups. When thinking about this in relation to SIMIC, it may be that if participants felt they were potentially going to be unable to gain a new identity following the transition, they may have been concerned about experiencing loneliness which would be detrimental to their well-being. It may be that this sense of pressure combined with the fear of loneliness may

have been driven by the stigma young adults perceive to be associated with loneliness, not wanting to be perceived as unlikeable or poorly adjusted or experience the shame of feeling lonely in a highly social environment such as university (Barreto et al., 2022; Kerr & Stanley, 2021).

The feeling that others were seemingly ahead socially added to this perceived window of friendship development, driving some participants to attempt to catch-up through pushing themselves socially. Nick described being 'strategic' in trying to develop a 'safety net' of new connections, relating this behaviour to fearing that they were missing out:

Nick (Male, 19): I don't know most of the time why I do stuff but there was a big thing about FOMO. Like I run myself into the ground trying to catch up on opportunities that I might miss. So, it was a matter of, umm, finding a way into all of these groups, in case there was a chance that there was one that really stood out to me, that I might have missed otherwise.

FOMO acted as an early driver for friendship development, through joining multiple groups in the hopes of finding at least one with a good fit. FOMO relates to an anxiousness that others around you are encountering interesting, rewarding experiences that you may miss out on, and so this increases the need to stay connected (Buglass et al., 2017; Przyblski et al., 2013). This desire for quantity, over quality, of connections in this period of transition was seen as a way to seek out groups which were best suited to them in the long-term. This could relate to the strategic development of an identity network during this period, with participants potentially cognisant of the importance of gaining new groups for their well-being (Iyer et al., 2009). It has previously been reported that there is a perceived expectation to quickly settle in and enjoy the university experience, with upward social comparison online being common (but detrimental) during this time (Thomas et al., 2017). There was a sense that it was important to cast the net wide to meet as many people as possible, but these relationships did not last over

the course of their university experience (Schoenebeck et al., 2016). Despite the relationships being short-lived, participants described how these groups "in first year they definitely provided a lot of support and interaction". Furthermore, Poppy felt these transitional connections had their place during this period, with the connections having a distinct purpose of providing a specific type of support during the transition:

Poppy (Female, 20): I mean, I feel like even though we didn't have a proper freshers, you still meet those people in, like, the first week that, that you get on so well with and whatever. And then you just don't speak again after the first week, but that's completely normal, I think. But that was nice for me because even though, like those friendships weren't long lasting whatsoever, I think just having people that I didn't know at all, that didn't know me, didn't know where I was from, what was going on. It was like a really nice like, just just being around people that didn't know how I was feeling at that time. Like, I could kind of put a bit in the face on and, like, have a laugh and have fun

The concealment of initially struggling during the transition has also previously been raised as a coping strategy for loneliness while at university (Vasileiou et al., 2019), with Poppy outlining how she found it helpful that these new connections could not tell she was struggling (Kerr & Stanley, 2021). She felt the support provided from this 'temporary' group facilitated her transition, providing another resource to draw upon in the period of vulnerability (Haslam et al., 2018).

For Lottie, it seemed as though she felt the perceived window of opportunity for friendship development had closed. Lottie described missing out on connecting with her peers due to living at home, together with starting university during the pandemic, leading to feeling alone and lacking connections on campus:

Lottie (Female, 21): Uh, so I think the reason, uh, I do feel alone is due to obviously me not living on campus, everyone formed their own friendship groups in first year. So when everyone was in lockdown, a lot of people found their own groups and they lived with them, they did like everything together, they came to uni and then went home together. And I just think like if you you were in that environment you just click, and I haven't like really clicked with anyone.

This supports previous findings that students who remain living at home while attending university may make fewer connections than those who move to university (Buote et al., 2007). The perceived barriers to connection listed by Lottie had a lasting impact on her sense of belonging as a student, contributing to feeling disconnected from other students and alone. There was a sense of loss in relation to a fully developed university identity and a feeling as though she was observing this in others, while attending but not belonging at university herself, due to missing out on joining a new university group. This was reflected in her reporting a score of 4 when asked about identifying with other university students, suggesting she did not identify with other students (needing a score of 5 or above, Sani et al., 2012). The impact of this may be seen in Figure 7.6, the map created by Lottie comprised of 4 group memberships, with one online group being a supergroup. Two of the circles were larger in size, demonstrating important groups.

Figure 7.6. The anonymised map created using the oSIM by Lottie
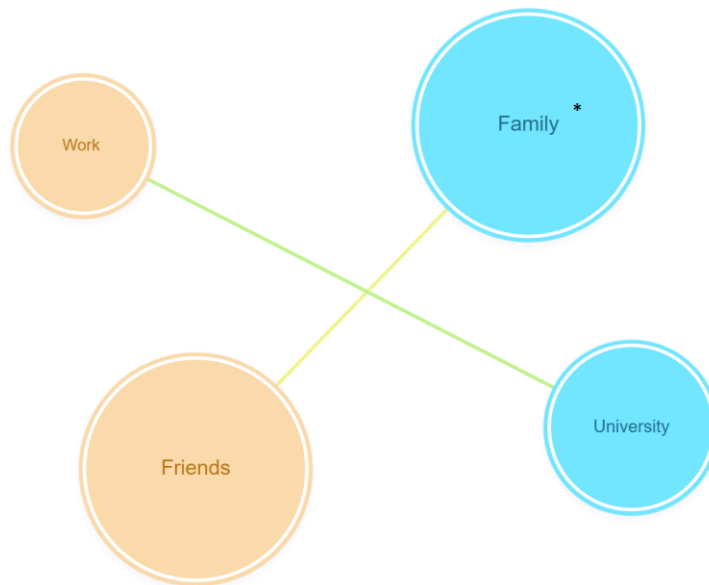
Note: The colours of the circles indicate the type of group, with blue = online, green = cannot classify, orange = offline. The size of the circles indicates the importance of the group, with bigger circles indicating greater importance. The closeness of the circles represents the similarities between the groups. The colour of the lines between the circles demonstrates the level of compatibility, with a green line for 'Very compatible', a yellow line for 'Compatible', an orange line for 'Incompatible', and a red line for 'Very Incompatible'. The * denotes a supergroup

When participants did experience loneliness during their transition to university, some described it as almost cyclical in nature, with the feeling of being alone building (Vasileiou et al., 2019). Diana remembered how the more isolated she felt, the more it became a barrier to seeking connections:

Diana (Female, 19): They contribute to each other because it's like if you don't show up, you're not gonna meet new people. And then if you don't really have anyone to speak to, you don't really want to show up because you're just kind of awkward, like just on your own. Yeah. So I think that does kind of. You have to like do one of them to like make it easier for yourself.

This linked to feeling the need to push themselves out of their comfort zone during this initial period to provide the opportunity to connect with as many people as possible, as to protect themselves from the experience of loneliness and find 'their' groups to adjust

(Vytniorgu et al., 2021).

Participants encountered some challenges regarding the COVID-19 pandemic and online learning. These factors impacted on developing new social groups while at university, and in turn, developing a new student identity (Symeonides & Childs, 2015). Despite this, participants recognised the importance of new groups through which a shared sense of support and understanding helped foster feelings of belonging. The initial lack of belonging and shared identity eased over time, with more in-person interaction; however, it was felt it had impacted on participants university experience. Participants described how knowing there were people at university that could offer support if needed helped with their sense of belonging:

Jaya (Female, 19): So I think both sort of like with university it's always like really nice to have a support network around you. You often find with uni, with it being so independent, it's really nice to have sort of supportive people and people going through some similar sort of context of that, like with you at the same time. And because it's almost like you're obviously, everyone's in the same, on the same page and you all trying to work it out yourselves. But if you've got that extra person who you know, you're doing it together, it can, it can feel quite reassuring.

Jaya described feelings of togetherness and support from those in the same position, reflecting how SIMIC outlines that a new identity can provide a sense of belonging and a new source of social support (Haslam et al., 2018).

While initial online connections were considered to be an important stepping stone in the development of a new identity prior to starting university, once at university there was a sense of pressure to cement these relationships quickly. This seemed to relate to an impending, imagined deadline to friendship development during the transition, with the idea that quickly establishing these relationships would provide participants with the comfort of belonging and

facilitate the development of a new student identity.

Summary of the qualitative findings

In conclusion, the role of online group membership in the social connectivity of young adults who had experienced the transition to university was pivotal but complex. Online groups were used to maintain contact with existing groups, allowing access to much needed support and the continuation of existing identities during a time of potential social upheaval. Online groups were also used in the development of new social groups; however, the complexities of online communication presented a hesitancy in participants developing a full sense of connectedness with online group members. Additionally, COVID-19 highlighted the importance of social connection, but it was also a period of loneliness for some, with online groups offering connection and highlighting isolation. It is unclear whether participants were conscious of reviewing their social groups in preparation for university to develop a supportive network for the transition or whether the pandemic acted almost like an early catalyst for this process. Following the transition to university, the opposite process occurred, through which participants aimed to develop new relationships, favouring quantity over quality initially, before again selecting the social groups which were best suited to them. This transitional cycle of acquiring and maintaining group memberships highlighted the process through which young adults reflected on their groups to ensure each group continued to meet their needs and sought out new groups that would also provide appropriate support. Finally, while COVID-19 and online learning presented initial challenges that acted to delay the development of a new student identity, participants recognised the importance of joining new groups to gain further support and a sense of belonging at university.

Discussion

This study provided an insight into how online and offline groups are used by young adults in the active construction of their identity networks within the transitional period of starting university, addressing the three research questions of the thesis. In relation to RQ1, does online group membership impact the mental health, well-being and experience of loneliness of young adults aged 18-24, participants described an awareness of how their group memberships, both online and offline, contribute to their well-being and loneliness. An important finding from Study 3 was that participants engaged in the active construction of their identity network, which was guided by the notion that positive, supportive groups should be maintained and sought out, whereas negative, harmful groups should be removed from the network. This was reflected in the maps created using the oSIM, with those who engaged in this process seen to create maps with more groups, and more supergroups.

Socioemotional selectivity theory may provide insight into the evaluation and consequent pruning of groups that young adults demonstrated in the present study (Carstensen, 2021). While much focus within this literature has been on how older adults reduce their social networks to focus on small but strong networks, the process has been seen in adulthood (Carstensen, 2021). Large social networks are usually expected within early adulthood as it supports information-seeking to learn about ones-self and the world through contact with others, and these large networks are pruned over time to create an emotionally meaningful network to support emotional regulation (Carstensen, 2021; Lansford et al., 1998). However, it may be that this process occurred earlier than expected in the present sample due to an awareness of mortality and sense of 'ending', in relation to the pandemic or the transition to university respectively, in support of the notion that perceptions of time horizons influence this process (Carstensen, 2021).

This construction of a positive identity network supported the findings of Kirwan et al. (2023), which linked the experience of loneliness to a period of self-reflection, during which young adults evaluate the discrepancy between their actual and preferred social situation (Cacioppo et al., 2014; Peplau & Perlman, 1979). Building on the findings from Studies 1 and 2, social support was again a key factor throughout the present study, with the present findings demonstrating participants were conscious that different groups could support different needs, in line with Weiss (1974).

Vasileiou et al. (2019) demonstrated seeking support to be an integral coping strategy for loneliness at university, from existing group memberships through online communication to seek contact and comfort, suggesting that coping strategies that are used offline can be applied online. This could be seen in the present study, with the current findings building on this to illustrate how young adults developed strong networks prior to starting university in order to access support online once at university. In summary, it was apparent that one of the driving forces behind this process of the active construction of a supportive identity network was the impact on well-being and loneliness each group had, reflecting the SIAH and thereby addressing RQ1.

When considering RQ2, does online group membership supplement social connectivity for young adults aged 18-24 when experiencing the transition to university, the findings suggest online groups acted as a top up to existing group membership support and facilitated the development of new group memberships once at university. This is an interesting contribution, as Thomas et al. (2017) argued that there had been a lack of research into how online communication may support the transition to university. An interesting finding relating to the differences between online and offline group membership in the present study was that young adults were hesitant to commit to a new online group, with their sense of

comfort within the group building through interactions with the online group, and then being developed further in-person. Previous research within the SIAH literature has suggested that identification has a greater impact than contact with a group on well-being (Sani et al., 2012). It may be that for online group membership, contact with the group helps to build a sense of shared identity, as it has previously been suggested that it is important to be noticeable within an online group, in order to achieve belonging (Park, 2018). Both the oSIM and interview data conveyed participants viewing the online and offline as a continuum rather than distinct. There were positives and negatives to both forms of communication and group membership, with participants choosing to engage with in whichever format was most appropriate at the time, depending on their needs. This supports the findings of Park (2018), with online and offline worlds viewed as co-existing, and online interaction considered to be positive and meaningful when 'tethered' to offline connections. This could potentially link to the bi-directional relationship between loneliness and social internet use, with online social internet use reducing loneliness when used to support social connections, both existing and new (Nowland et al., 2018), as seen in the current study.

Further, both the oSIM and interview data highlighted how the young adults considered group diversity within their networks to be important. From the oSIM, the results demonstrated that on average, participants belonged to 3 different types of groups, and in the interviews, participants described designing a supportive social network, as belonging to different types of groups led to accessing different resources (Charles et al., 2023). In recognising the opportunity to gain identities through joining new online groups and manage identity continuity through online groups, accessing various groups and their associated resources, young adults were able to supplement their social connectivity online during a period of disruption in their social network, addressing RQ2.

In relation to RQ3, how has COVID-19 shaped online group membership and the experience of loneliness, for young adults aged 18-24 who experienced the transition to university following the COVID-19 pandemic, the pandemic seemingly impacted three main areas for participants in this study. Firstly, COVID-19 may have brought forward, or even triggered, a period of reflection over participants group memberships and whether each group was beneficial or harmful (Carstensen, 2021), as discussed above. This may be linked to the pandemic being a period of isolation for some, as loneliness has been regarded by young adults to provide the opportunity for reflection and growth (Fardghassemi & Joffe, 2021; Hemberg et al., 2024; Kirwan et al., 2023), with the present findings providing a theoretically-guided insight into that process. Alternatively, it may be that this period of consideration during the pandemic was due to a potential increased awareness of the need for appropriate support to rely on during this time of uncertainty and anxiety (Graupenspencer et al., 2020; Lee et al., 2020), with the present findings suggesting young adults considered online groups to be an extension of offline groups, in order to access the psychological resources of the group such as support.

Second, the increase in online communication as a result of the COVID-19 pandemic had an impact on participants perceived adjustment to university. While mis-matched expectations compared to the reality of starting university have been reported previously (Buote et al., 2007; Wilcox et al., 2005), there was a sense of loss surrounding what the university experience 'should' have been related to socialising and making friends, as a result of COVID-19. Kirwan et al. (2023) described how young adults compared their social lives to societal norms and expectations, as well as with others, with these social comparisons associated with loneliness. FOMO may have contributed to this, as FOMO has been found to be positively associated with social media intensity, but negatively associated with social connection (Roberts & David, 2020), with COVID-19 found to moderate the relationship between FOMO and internet use (Akbari et al., 2021). When able to socialise in-person,

participants described seeking quantity over quality in their new connections. This may demonstrate how once back in a 'normal' social setting following the pandemic, young adults began information-seeking to develop an understanding of themselves and to create a larger social network (Carstensen, 2021; Lansford et al., 1998).

Third, participants learning environment and subsequent sense of belonging at university was impacted by COVID-19. Online learning and the delay in meeting in-person were barriers that contributed to feeling disconnected to other students, which delayed their sense of belonging. Belonging is key to successful transition, and becoming more widely recognised as such, with loneliness considered to be the alternative outcome (Alkan, 2016; Tang et al., 2023). Tang et al. (2023) outlined how students participating in online learning during the pandemic experienced belonging as multi-layered, connecting it to peers, academics, the university, and their profession, with the pandemic having the most impact on peer connectedness, supporting the current findings. Pownall et al. (2022) recognised that sense of belonging at university may have been affected by the pandemic through missing the physical and social environment of a campus, which should be managed by a focus on peer support and collaboration when working.

Overall, the increased use of online communication during the pandemic and to facilitate the continuation of existing relationships during the transition to university in the present study would support the compensatory theory of technology use, suggesting offline communication was substituted for online communication as offline interactions were limited by either pandemic restrictions or distance (Brown & Greenfield, 2021). It has been suggested that online interactions are used to compensate for missing offline interactions when inaccessible, with transitions raised as a key time for compensatory internet use to be utilised as a coping strategy (Akbari et al., 2021).

Throughout each of these three elements, the potential to experience loneliness seemed to be ever-present in some participants' minds and tied to the transition to university. This is an important finding of the current study, as loneliness was not directly asked about, and yet it came across as important, almost inevitable to young adults, with a strong desire to evade it. This fear of experiencing loneliness may be due to a concern about not adjusting to university life, as outlined above, or due to the shame and stigma associated with loneliness for young adults and students (Barreto et al., 2022; Kerr & Stanley, 2021; Zheng et al., 2023). For those who did experience loneliness, gaining social support, distracting themselves, problem solving through relationship building, and withdrawing from others were all raised as coping strategies, in line with previous work (Vasileiou et al., 2019). Together, these findings demonstrate how has COVID-19 shaped online group membership and the experience of loneliness, addressing RQ3.

The analysis was theoretically guided by SIAH and SIMIC (Haslam et al., 2018; Iyer et al., 2009), exploring whether and subsequently how online groups are used with offline groups during the transition to university within this framework. In support of the inclusion of online group membership within SIMIC, the findings demonstrated how transitions encouraged the evaluation of existing groups to create a supportive network, with connections with these groups either prioritised to enhance connection online (identity continuity) or lessened as to create distance (identity loss). Online groups facilitated the social identity continuity pathway for participants to maintain their existing group memberships at a distance, online, to access support (Ng et al., 2018; Thomas et al., 2017). Prior to the transition, young adults sought out information about other prospective students (Schoenebeck et al., 2016), reflecting the identity gain pathway beginning. Although, it was only once participants had met in-person that this would develop. Further, it seemed as though assessing group compatibility may have been a contributing factor in the hesitancy to commit to the online

group, with this decided in-person. Few studies have explored compatibility (McNamara et al., 2021), with the present study suggesting that online groups may facilitate the assessment of compatibility. The contribution of online group membership may be seen to be an integral and overlooked component of the SIMIC. It has previously been questioned as to whether technology may develop or hinder identity (Stuart et al., 2022), with the present findings suggesting online group membership may follow the pathways outlined in SIMIC, as both a contributor and supplementary to offline group membership within the model.

The integration of the oSIM data with the qualitative themes provided a novel insight into how young adults engage with their social groups and how this affected their experience of the transition to university during the COVID-19 pandemic. When considering the use of the oSIM as both a quantitative and qualitative tool, from a researcher perspective it was useful to observe participants creating and reflecting on their maps, with the oSIM collecting the quantitative data, allowing follow-up questions to be asked about the groups included in the maps. From a participant perspective, it was felt the programme was intuitive in design and informative for themselves. In line with Bentley et al. (2019), participants in the current study felt the creation of their maps using the oSIM to be an interesting, engaging and reflective experience. Participants commented on enjoying seeing their social maps, with the process uncovering realisations about their social networks, for example one participant was surprised by how disconnected their social groups seemed, with seeing the map on screen making it apparent that their groups were quite distinct, pondering whether a more integrated network would be better and how to integrate their groups more in the future. Therefore, the inclusion of the oSIM within the interview was both useful and appropriate to explore the research questions posed by the thesis.

A limitation of the study is that it was conducted retrospectively, with the interviews taking place between one or two years following the participants transition to university

depending on their starting year. Consequently, their accounts may have been influenced by their memory of the events and their experiences following the transitional period, allowing time to reflect. Vasileiou et al. (2019) and Kirwan et al. (2023) argued that while the experience of loneliness may be negative and overwhelming in the present, a period of reflection following this may allow for positive aspects of the experience to be identified, which may be seen in the findings of the current study. Furthermore, it may have been interesting to explore the experience of loneliness at the point of transition through interviews, and any changes of social network composition between two timepoints using the oSIM (Beckwith et al., 2019).

Conclusion

In conclusion, Study 3 provided an overview as to how online and offline groups are used by young adults in the active construction of their identity networks, exploring the impact of the transitional period of starting university alongside the experience of the COVID-19 pandemic. This study provided a qualitative insight into the experience of loneliness, in relation to the transition to university and during the pandemic, highlighting how online groups were a source of support when physically distanced from important groups. It also provided a visual, mixed methods insight into the group memberships that make up the social identity networks (both online, offline, and groups along this continuum) of young adults. This was explored further through qualitative interviews, which demonstrated when and how online groups were used to develop and maintain identities, addressing the three research questions of the thesis.

Chapter 8. General Discussion

Chapter Overview

This thesis investigated whether SIAH processes occur in online group membership for young adults, exploring role of social identities in online groups, the interplay between online and offline groups, and the impact this has on health, well-being and the experience of loneliness for young adults. The impact of COVID-19 on these relationships was also considered. This was investigated using a mixed methods explanatory sequential design, through three studies. The first two studies were the quantitative phase of the thesis, with Study 1 consisting of two cross-sectional online surveys, with the aim of investigating the relationship between online group membership and health, well-being and loneliness for young adults, in pre- and post-pandemic samples. Study 2 aimed to investigate the relationship between multiple group membership (online and offline groups) and well-being and loneliness for young adults experiencing the transition to university, through a cross-sectional and longitudinal analysis of data collected in two online surveys. The final study was the qualitative phase, which aimed to provide context to the findings of the quantitative studies through the exploration of young adults' experiences of using online groups during their transition to university during the pandemic and their perceptions of loneliness during the transition, in a mixed methods study which included semi-structured interviews and oSIM. This chapter will provide an overview of the aims and findings from the three studies, integrating the qualitative findings with the quantitative findings (Creswell & Plano Clark, 2018), reflect on the unique contributions made within the thesis, discuss the appropriateness of the methodology, highlighting the strengths and weaknesses of the thesis, and suggest directions for future research.

Research Questions and Objectives

The research questions developed to explore the main aims of the thesis are outlined below:

Research Question 1: Does online group membership impact the mental health, well-being and experience of loneliness of young adults aged 18-24?

Objective: To investigate the relationship between online group membership and health, well-being and loneliness for young adults.

This was explored quantitively through two cross-sectional surveys, one prior to the pandemic and one following the pandemic (Study 1a and 1b). Study 1 aimed to investigate whether identification with an online group was associated with higher reported levels of satisfaction with life and social support and associated with lower reported levels of loneliness. Studies 2 and 3 aimed to build on this initial exploration of these variables, by investigating SIAH processes both quantitatively and qualitatively. Study 2 explored whether online group membership may be used in an additive way alongside offline group membership, to potentially provide greater access to social and psychological resources, to improve well-being and loneliness. Study 3 explored whether young adults felt their use of online groups impacted their well-being and loneliness.

Research Question 2: Does online group membership supplement social connectivity for young adults aged 18-24 when experiencing the transition to university?

Objective: Explore the relationship between online group membership, offline group membership and loneliness, for young adults who have experienced the transition to university, exploring the impact of their online and offline social groups on health, well-being and loneliness.

This was initially explored quantitatively through a cross-sectional survey (Study 2a). Study 2 aimed to investigate the relationship between multiple group membership (online and offline groups) and well-being and loneliness, with the aim of exploring this relationship over time (Study 2b). RQ2 was explored further in Study 3 using quantitative and qualitative data. Study 3 was a mixed-methods study using oSIM and semi-structed interviews which aimed to gain understanding of how online groups (new and existing) were used by young adults experiencing the transition to university following the pandemic and mapped out the online and offline social groups young adults belonged to, to explore the interconnections between the two.

Research Question 3: How has COVID-19 shaped online group membership and loneliness for young adults aged 18-24 who experienced the transition to university following the COVID-19 pandemic?

Objective: To provide an understanding of young adults' experiences of the transition to university following the pandemic and the role of their social groups during this time, exploring whether the pandemic had an impact on online group membership and their perceptions of loneliness during this time.

This was explored quantitatively through the data collected using the oSIM, to provide an overview of the social groups young adults belonged to, and qualitatively through interviews to provide greater insight and context to the quantitative findings of Studies 1 and 2.

The findings across the thesis to each of these research questions will be outlined below.

Integration of the research findings

This thesis explored SIAH processes within online group membership for young adults, prior to and during the COVID-19 pandemic, through quantitative and then qualitative methods. Within the SIAH literature, there is emerging research into whether social identities may be derived from online group membership, and whether these identities afford similar

health benefits to those of offline group memberships (Draper & Dingle, 2021; Finn et al., 2023; McIntyre et al., 2018; Mills et al., 2024). The thesis was the first to explore multiple aspects of online group membership and health, well-being and loneliness, in three different contexts: in a sample of 18-24 year olds prior to the COVID-19 pandemic; in a sample of 18-24 year olds during the COVID-19 pandemic; and in two samples of 18-24 year old students who experienced the transition to university during the COVID-19 pandemic. The research was conducted using a mixed methods explanatory sequential design, which provided an understanding of when and how online group memberships may elicit identities, and the extent to which this was related to well-being and loneliness for young adults. The qualitative findings of the final study will now be used to provide context and understanding to the main quantitative findings from the first two studies (Creswell & Plano Clark, 2018).

Online group membership and loneliness

An online cross-sectional survey was conducted in Study 1a, to quantitatively explore SIAH variables within the context of online group membership. As previous research within the SIAH literature has demonstrated relationships between each of the variables (for example, community identification predicting greater social support, lower loneliness and higher well-being; McNamara et al., 2021), with regard to offline groups, it was felt that as the variables of interest were known (Creswell & Plano Clark, 2018), and would be important to apply this to the online setting as the first study. During the initial correlational analysis in Study 1a, identification with an online group was not associated with loneliness. However, social support emerged as a key variable in explaining the relationship between identification with an online group and loneliness and well-being in Study 1a and 1b, with each finding an indirect-only mediation demonstrating greater identification with the salient online group to be a positive predictor of higher levels of social support received from the salient online group, which was a negative predictor of loneliness, which was a negative predictor of SWL. This would support

Social Cure processes (Haslam et al., 2018) being applicable within online group membership, as while identification with the online group was present, it was the psychological resources gained through identification that had an impact on loneliness and well-being. Furthermore, it supports previous research demonstrating a link between loneliness and social support (Sundqvist & Hemberg, 2021).

In Study 2, loneliness was not associated with multiple group membership (both online and offline). This was unexpected, as multiple offline group membership has previously been associated with better mental and physical health (Iyer et al., 2009; Sani et al., 2015). It was proposed that as Study 2 was conducted during the COVID-19 pandemic, social group memberships (both online and offline) may have been disrupted (Hawkins et al., 2024; McKinlay et al., 2022; Towner et al., 2022), with this disruption impacting the quantitative findings.

Turning to the qualitative findings to explore this, young adults described feeling as though the pandemic had affected their social group memberships and experience of loneliness, both positively and negatively. When considering the negative effects, young adults described feeling a desire to withdraw socially (Achterbergh et al., 2020; Vasileiou et al., 2019), the loss of group memberships (Cruwys et al., 2014), and difficulties bonding online with fellow new students (Pownall et al., 2022). In relation to the positive effects, social support being a key aspect of online group membership with regard to loneliness was also reflected in the qualitative findings, as seeking social support from existing connections was a coping strategy during the transition which provided comfort (Hawkins et al., 2024; Vasileiou et al., 2019), and new group memberships offered understanding rooted in shared experience (Alfadhli & Drury, 2018). Fardhassemi and Joffe (2021) argued online coping was an extension of offline coping with loneliness for young adults, with active connection with others felt to alleviate loneliness,

which was backed by the present findings as young adults sought out support from important existing group memberships online.

Seeking support online from those with a shared identity may be particularly beneficial, as group members are more receptive to support from other members of the group and may perceive the support to be more effective (Haslam et al., 2004; Haslam et al., 2005; Haslam et al., 2012). Therefore, there was the suggestion that participants were aware that different groups could fulfil different needs (McNamara et al., 2024; Vriens & van Ingen, 2018; Weiss, 1974). This may be explained by loneliness being retrospectively considered to be useful, as it encourages a period of self-reflection to assess whether groups are currently meeting needs and motivates change to ensure groups are beneficial (Cacioppo et al., 2014; Cacioppo et al., 2006; Käcko et al., 2024; Kirwan et al., 2023; van Roekel et al., 2016; Vasileiou et al., 2019). Thus, the qualitative findings provided an insight into how social group membership was impacted during the pandemic, and how young adults were able to maintain existing identities online and develop new identities online in order to access support during a potentially lonely period.

Online group membership and well-being

The findings of Study 1b supported those of Study 1a, with two indirect-only parallel-serial mediations demonstrating greater identification with the salient online group to be a positive predictor of higher levels of social support received from the salient online group, which negatively predicted loneliness, which was a negative predictor of SWL. The quantitative findings of Study 1 demonstrate the importance of being able to access social support through online group membership for well-being, supporting SIAH processes being applicable to online groups. However, in Study 2, SWL and psychological distress were not significantly associated with identification with either multiple online or offline group membership, and this lack of correlational support and a lack of statistical power meant that

further exploration was not pursued quantitatively. As highlighted in the previous section, this may be a result of the timing of the data collection, as social groups were disrupted during the pandemic, potentially making it difficult to access the usual psychological resources group membership can provide (Haslam et al., 2018). This was reflected in the qualitative findings, as young adults described engaging in the assessment and evaluation of their social groups, to understand whether groups offered social support and whether groups were beneficial or detrimental to their well-being (Haslam et al., 2008), further supporting the idea that Social Cure processes can be enacted in online group memberships. Young adults described evaluating and then pruning their group memberships, depending on whether the groups were positive, supportive groups that ought to be maintained, or negative, harmful groups that needed to be removed (Hawkins et al., 2024).

Socioemotional selectivity theory would suggest that the young adults in the present research may have cultivated a supportive network as a result of either the pandemic or the transition to university, or both (Carstensen, 2021), thereby providing a potential explanation of the findings of Study 2, as group membership may have been questioned during this period, in so doing potentially losing the associated psychological resources (Haslam et al., 2018). The pandemic may have presented young adults with an awareness of mortality and the transition to university may have created a sense of 'ending', as time horizons influence this process (Carstensen, 2021). This was further supported by the oSIM data, as those who engaged in this process were seen to create maps with more groups, and more supergroups, evidenced by the greater support, engagement and positivity. This may suggest that young adults are conscious of the importance of creating a stable basis of groups that may be protective against disruptions to social networks going forward (Hawkins et al., 2024). Together, the findings of the present research suggest that young adults knew that online group membership, of both new and existing groups, could offer access to social support and knew which groups to prioritize and

maintain connections with, to continue to receive support from during difficult times in order to support their well-being.

Online group diversity

While multiple group membership provides multiple avenues of support and is protective against identity loss (Haslam et al., 2021), emerging research has explored the effects of belonging to multiple different types of groups on loneliness (Charles et al., 2023). Each of the studies provided an overview of the groups listed by participants, which provided insight into the most common groups reported by young adults, and insights into group-type diversity in Studies 1 and 3, with friendship, family and education-based groups being the most common groups reported across studies. It was predicted that greater group-type diversity would be associated with higher reported levels of well-being and lower reported levels of loneliness, which was not supported in Study 1. Charles et al. (2023) had proposed that a diverse range of group-types would improve creative self-efficacy, which may be of importance if experiencing loneliness, as it could allow cognitive flexibility to address loneliness. Young adults described purposefully seeking out particular groups online when it was felt as though loneliness may be emerging, suggesting some form of problem solving to address loneliness within the qualitative findings. However, it could be that as participants could only report four group memberships in both Study 1a and 1b, with this limiting the group-type diversity to a maximum of three different types of groups, it may have been that this design limited the exploration of the variable, as opposed to the difference in findings being a result of online groups being explored compared to offline groups (Charles et al., 2023). This was addressed in Study 3, through the use of the oSIM allowing participants to create a map that was reflective of their entire social network, with participants reporting 3 different types of groups on average, compared to the 1.7 reported in Study 1. It was further supported by the qualitative findings, as participants described accessing different groups for different resources, knowing that each

group offered something different, suggesting diversity may be of importance to young adults for their experience of loneliness (Charles et al., 2023).

Frequency of contact with online groups

The SIAH, loneliness, and cyberpsychology literature have each explored the effects of frequency of contact with social groups (Barry & Wong, 2020; Nowland et al., 2018; Sani et al., 2012; Twenge & Campbell, 2019), and so when drawing these literatures together, it was felt important to explore the relationship between frequency of contact with online groups and health, well-being and loneliness in the present research. While the loneliness and cyberpsychology literature demonstrated mixed findings as to whether greater online contact was beneficial or detrimental to levels of loneliness (Pennington, 2021; Yavich et al., 2019), it was thought that the extent to which people identified with the group may provide insight into this relationship. As previous research in SIAH had argued that group identification predicts greater well-being more than the frequency of contact with the group in an offline setting (Sani et al., 2012), it was unexpected when a positive association was found between frequency of contact with the online group and SWL in Study 1a, indicating that greater levels of contact with the online group predicted greater SWL. It was proposed that there may be a reciprocal relationship between contact and identification with an online group, as a positive correlation was found between contact and identification. However, when explored again in Study 1b, neither frequency of contact with the online group or identification with the salient online group were found to be associated with SWL. This may have been a result of the pandemic, as feeling connected to others online during the pandemic reduced and there was a reported withdrawal from online connections for some (McKinlay et al., 2022; Towner et al., 2022).

When considering how the qualitative findings of the thesis may be used to explain these mixed quantitative results, both the content analysis (Study 1b; Study 2) and the thematic analysis (Study 3) raised how young adults recognised a desire to withdraw from connections

during the pandemic, with this linked to a feeling of distance when using online communication during this time. The qualitative findings also supported the notion that contact with an online group may assist in the development of identification with the online group, as young adults described how their participation in the group became more active, as opposed to passive 'lurking', as their sense of comfort within the group increased (Sun et al., 2014). This also added to the sense of being a group member, as they contributed more to the group and were recognised more within the group. These findings would suggest that while identifying with the group may be of greater importance for health and well-being (Sani et al., 2012), contact with the online group may be a vital stepping stone in the formation and continuation of an identity online (Best et al., 2018). This potentially adds context to the findings of previous research into online group identification within the SIAH. McIntyre et al (2018) found a non-significant relationship between online group identification and mental health outcomes when compared to other types of group identification, with Draper and Dingle (2021) finding online group identification to be significantly lower than identification when the group was in-person. It may be that while identification is present online, multiple factors (such as frequency of contact with the group) influence its strength and effectiveness in acting as a Social Cure online (Haslam et al., 2018).

Group membership and COVID-19

As highlighted above, the association between identification with online and offline groups and the well-being variables were not significant in Study 2, potentially due to the disruption of social networks within the pandemic. However, while offline group memberships may have been disrupted, physical distancing may not have always meant social distancing, through the use of online connectedness (David & Roberts, 2021). A significant relationship was found between multiple online group membership and adjustment to university through identification with other university students in a simple mediation model from Study 2a,

suggesting that multiple online group membership may have been used to facilitate identification with other university students. This was supported by the qualitative findings, with young adults describing how joining new online university groups was important for facilitating the identity gain pathway of SIMIC (Iyer et al., 2009) through seeking information about new connections (Schoenebeck et al., 2016). However, this was also complex, in that young adults were conscious of managing impressions online, being concerned over misunderstandings and whether the online persona was 'real' (Schoenebeck et al., 2016). Returning to the mediation model, identification with other university students then went on to predict adjustment to university. This would suggest that developing the new identity of 'university student' may help with adjusting to university for the young adults taking part in Study 2. This was reflected in the qualitative findings of Study 3, in the process of going from lurker to active group member in their new online university-based groups, with more active behaviours potentially reflecting the identity gain pathway and feeling more like a group member through increased confidence over time observing and the sharing of social norms (Iyer et al., 2009; Sun et al., 2014).

SIMIC articulates how groups may affect health and well-being through group processes during a transition, with compatibility being explored to a limited degree, despite group compatibility supporting and enhancing the effectiveness of social identity continuity and gain (Haslam et al., 2021; McNamara et al., 2021). Study 2 found that the interaction between multiple online group membership and group compatibility did not significantly predict identification with other university students, demonstrating no moderation. This was unexpected, as compatibility is important for integrating new groups alongside existing groups (Iyer et al., 2009). It may have been that at the point of data collection, during the first two months of starting university, the young adult participants were still assessing the compatibility of new groups against existing groups. Looking to the oSIM data for further insights, some

participants represented differences in pre- and post-transition groups as separate within their oSIM, indicating a lack of similarity between the groups, and qualitatively it was a point of reflection as to whether groups were compatible. It may be that young adults underwent a process of evaluating the compatibility of their groups during this period. Jones and Hynie (2017) raised that there has been limited research into how people consider and manage multiple identities, with this supported more recently by McNamara et al. (2024) and furthering this by questioning whether identity (in)compatibility can motivate change. Participants described using distance (and reduced in-person connection) as an opportunity to either develop closeness online to maintain important identities or remove unsupportive identities through withdrawal of contact (Burke, 2003). This would suggest that young adults were potentially aware of identity incompatibilities present within their network, which motivated the evaluation and pruning period, indicating young adults engaged in managing identity conflict through reconciliation, reflection, and retreat (Jones & Hynie, 2017; McNamara et al., 2024). This evaluation of the social identity network may link to context collapse, the notion that multiple social spheres are at the same time viewing online profiles, therefore having to manage the differing expectations of each sphere in order to achieve harmony (Binder et al., 2012; Brandtzaeg & Lüders, 2018). It could be argued that young adults may be more aware of group (in)compatibilities, due to growing up as digital natives (Brandtzaeg & Lüders, 2018), thereby possibly being conscious of context collapse from a young age. As such, as their social network was anticipated to grow during the transition to university, in size and potentially diversity, the evaluation and pruning of groups may have been an attempt to ensure harmony and compatibility going into the transition (Binder et al., 2012; Iyer et al., 2009).

In conclusion, the main findings of the thesis address the three research questions by demonstrating the complex relationship between online group membership and health, well-being and loneliness for young adults, providing an insight into how SIAH may work online,

highlighting the contribution of online group membership in the maintenance and development of identities (both online and offline), and an understanding as to how COVID-19 shaped social groups and influenced loneliness. The following section will discuss the original contributions to knowledge that the findings outlined above have provided to the literature.

Original contributions

This section will provide an overview of the four main contributions of the thesis to the literature, which include: (1) an understanding of online group identification; (2) how online group membership is used by young adults; (3) the impact of COVID-19 on young adults; and (4) the loneliness experienced by young adults living in the UK.

An understanding of online group identification

This thesis explored multiple aspects of online group identification, including identification with the salient online group, multiple online group identification, and the integration of online and offline groups within the identity networks of young adults. This thesis was the first to explore salient online group membership, namely, the online group which was considered by participants to be their most important group with the highest reported identification score. This extends the understanding of how young adults perceive their social worlds, as the majority of research within the SIA will ask participants about specific group memberships, which may not be the most important groups to participants (Foran et al., 2021; van Dick et al., 2023). It could be argued that studies that include the multiple group listings task (Haslam et al., 2008) and those using the oSIM (Conneely et al., 2024; Cubis et al., 2023) provide a more encompassing insight into the social groups participants belong to, supporting the exploration of the salient online group (Foran et al., 2021; van Dick et al., 2023), though the groups most commonly reported in the present thesis were reflective of those which are

included in other research as set options (for example, family and friends; McNamara et al., 2024).

Initial work exploring whether online group membership can be beneficial to health and well-being has been conducted through the investigation of a specific online group of which all participants are a member (Daynes-Kearney & Gallagher, 2024; Draper & Dingle, 2021; Finn et al. 2023; Mills et al., 2024), which has provided understanding of identification being present online, though potentially not as strong as offline, and that it has been associated with lower loneliness, anxiety and depression, and higher well-being, self-esteem and self-efficacy. The findings of the present thesis support and extend this, demonstrating that online groups may be able to provide psychological resources (such as social support) to benefit well-being (Haslam et al., 2018), and that different social identities can be enacted through online groups (Harris & Easterbrook, 2024).

This thesis was the first to explore multiple online group membership, as previous research has demonstrated the importance of multiple group membership in providing various avenues of social support, facilitating access to new groups, and protecting against identity loss (Iyer et al., 2009). The present research builds on this, by investigating how multiple online groups could be utilised to facilitate the development of a new identity and subsequent adjustment following the transition to university. Online groups were considered by young adults to be the basis for constructing their new student identity. The new, online, student-based groups were a source of support, both emotional in terms of sharing experiences and a sense of togetherness, and informational in terms of asking and answering questions about university. This highlights how SIAH processes were beginning to form in the early stages of the online group, which were then developed further in-person.

This thesis was the first to explore the integration of online and offline groups within the identity networks of young adults, though this has been raised by participants in previous research (Hawkins et al., 2024; Ng et al., 2018), demonstrating its importance to young adults. This thesis aimed to explore the interconnections between online and offline group membership, as previous SIAH research has focused on one or the other, limiting the understanding of how social groups and identities can be experienced, with the current research capturing more of the nuance of the online-offline continuum and how identities can be enacted and developed across both worlds. Within the cyberpsychology literature, there is evidence that relationships are increasingly bridged across online and offline interaction (Ellison et al., 2007). Commonly, online interactions are used to develop relationships established offline (boyd & Ellison, 2007), with this supported by the qualitative findings of this thesis across the three studies, as it seemed as though online groups were not considered by participants to be distinct from their offline groups, but instead extensions of their offline groups. Those starting university turned to online groups to prepare for the transition to university through developing new connections, some of which became offline connections. Further, during the transition online groups were used to maintain existing group memberships, as seen in boyd and Ellison (2007). The findings in the present thesis extend these previous findings through the application of SIAH, providing an insight into why these processes occur and the impact this has on mental health and well-being. This research highlights the importance of online groups being able to offer social support to young adults, regardless of physical distance or restrictions during the pandemic. In addition, when considering SIMIC and online group membership, the present findings suggested online groups were being utilised by participants in a preparatory way to gain information about future peers and connections (Thomas et al., 2020), with this information also providing comfort during an anxiety-provoking time. This supports the findings of Cubis et al. (2023), in which it was raised that online communication was an

important strategy of identity maintenance. This thesis is the first to offer quantitative and qualitative support of the inclusion of the contribution of online group membership to SIMIC, demonstrating the ways in which online group membership is used to support social identity pathways during transition alongside offline group membership.

As such, this research provides an in-depth understanding of multiple aspects of how young adults perceive their online group memberships, within the context of the SIAH theoretical framework. Building on this, it would be important for future work within the SIAH to consider the influence of the online, as online and offline groups are not distinct categories, and it may be considered important to explore how identities can be developed and maintained online in a variety of contexts, and how this may be used to support well-being (Harris & Easterbrook, 2024).

How online group membership is used by young adults

There is a lack of research exploring how young adults experience and respond to the disruption of their social networks (Hawkins et al., 2024). The present research provided an overview of how young adults use online group membership to support the transition to university, an in-depth insight into how online group membership is used by young adults in the development of a new identity and in the maintenance of existing identities, and how young adults use online group membership to cope with loneliness. Study 3 demonstrated the process of tailored support seeking through online group memberships to alleviate feelings of anxiety and loneliness (Hawkins et al., 2024). Interestingly, the findings across the thesis found no association between the well-being variables and social support provided and while participants described a sense of togetherness and shared experience in new online groups, this was usually spoken of in relation to seeking support. This was surprising, as support may be provided between those of a shared identity (Haslam et al., 2012), though this may be another example of the young adults being unsure of the new online group until they were able to meet in-person.

It demonstrated how joining new online groups prior to the transition to university led to joining more groups once at university through those connections made online (Haslam et al., 2018; Sundqvist & Hemberg, 2021; Vriens & van Ingen, 2018), with this facilitating joining new university friendship groups which have previously been found to be protective (McIntyre et al., 2018). Young adults also described using online groups during the pandemic as a way of strengthening the relationship through regular communication (Vriens & van Ingen, 2018). This thesis develops the understanding of how young adults use online group memberships to counter and adjust to disruptions within their social networks (Hawkins et al., 2024).

The impact of COVID-19 on young adults

This thesis adds to the literature examining the impact of the pandemic on young adults, with the present research providing an understanding of how the pandemic influenced social identity development for young adults. While identification with the online groups was present across the three studies of the thesis, and in Study 1 associated with loneliness and well-being, both Studies 1 and 3 raised the importance of contact with the online group. Contact with the online group may have an important role, especially as it facilitates the ability to maintain connections with existing groups, which was emphasised during the COVID-19 pandemic as a method of alleviating loneliness. Additionally, joining new online groups related to university and feeling comfortable contacting these new online groups indicated the gradual development of a new student identity; however, it was felt by young adults that their new student identity was delayed by the restrictions surrounding COVID-19, meaning that most socialising and teaching was carried out online (Grozev et al., 2024; Kyne & Thompson, 2020; Richardson et al., 2024).

This sense of delayed identity development because of the pandemic may link to a wider sense of delay in entering emerging adulthood. Kirwan et al. (2024) suggested that the COVID-19 pandemic may have prolonged or reversed the expected transitional steps

associated with emerging adulthood (Arnett, 2007), such as moving away from home to start university (Conrad et al. 2021) and suggested this sense of delay may encourage feelings of loneliness. This highlights that the current research encompassed multiple experiences of life change for young adults in exploring the transition to university during the COVID-19 pandemic, which may be considered to be a methodological advantage, as previous research has primarily explored single life changing events (Haslam et al., 2021).

The loneliness experienced by young adults living in the UK

The findings of this thesis provide an insight into the loneliness experienced by young adults living in the UK. Within the quantitative exploration of loneliness in this thesis, a continuous measure was used to investigate the level of loneliness experienced by young adults (Hughes et al., 2004). This highlighted that across the first two studies, loneliness was perceived to be at a moderate level for young adults (Hughes et al., 2004). However, this continuous measure does not provide information about the nature of their loneliness, whether it is chronic or transient (Hemberg et al., 2024; van Roekel et al., 2016), or what type of loneliness is being experienced (van Tilburg, 2021). Although participants in the present research were not directly asked about loneliness in the qualitative phase of the thesis, it was raised by many when asked about their social connectedness, indicating its significance for young adults currently (Eager et al., 2024). The qualitative findings of the thesis would suggest that as young adults described a fear of experiencing loneliness more so than a deep sense of loneliness, it may be that the young adults participating were experiencing either situational or transient loneliness rather than chronic loneliness, though young adults seemed to be concerned about loneliness becoming chronic or persistent. Young adults reflected on using the fear of, and experience of, loneliness to act as a motivator for change within their social networks, which could be seen to support the evolutionary theory of loneliness (Cacioppo et al., 2006; van Roekel et al., 2016). In addition, when considering the different types of loneliness, it

seemed as though young adults experienced a fear of not being able to social integrate at university and a loss of meaningful relationships during the pandemic and transition to university, suggesting social and emotional loneliness, rather than existential (Hemberg et al., 2022; van Tilburg, 2021; Von Soest et al., 2020; Weiss, 1975). Furthermore, there was an awareness of the cyclical nature of loneliness, young adults felt loneliness led to anxiety when socialising and this sense of pressure to find connections became a barrier to meeting people, worsening loneliness (Malli et al., 2023; Vasileiou et al., 2019).

When considering the use of online groups in relation to the loneliness experienced by young adults, online groups could offer support and connection or highlight disconnection and sometimes exclusion through a lack of belonging, supporting the idea that social media can be both beneficial and detrimental for loneliness depending on how it is used (Käcko et al., 2024; Nowland et al., 2018; Sheldon et al., 2011). While online group membership was considered useful in developing connections, young adults perceived this to be lacking when online connections were the only option. This supports previous literature suggesting young adults prefer in-person connection compared to online (Hawkins et al., 2024; Hughes et al., 2024; Mental Health Foundation, 2010; Nowland et al., 2018), but adds to this with the application of SIAH processes (Haslam et al., 2018), suggesting that it may be that while identification may be present in online group membership, factors such as compatibility and a deeper sense of belonging may be developed to a greater extent in-person to support loneliness.

Furthermore, it may be that while young adults described fearing the experience of loneliness, the findings lend themselves to supporting the idea that loneliness may not always be perceived as a solely negative experience, as participants described being able to make informed decisions about the groups to remain a member of and others to seek out through self-reflection (Käcko et al., 2024), though it has been raised that loneliness can be hard to remember due to difficulties conceptualising the experience (Weiss, 1975), which may also

play a role in this. These findings add to the loneliness literature to measure the levels of loneliness and demonstrate the experience of loneliness from the perspective of young adults living in the UK, as having a better understanding from the perspective of those at risk of experiencing it can help to inform interventions (Hemberg et al., 2024; Kirwan et al., 2024; Verity et al., 2021). Social identities have an important role in alleviating loneliness (Evans et al., 2022; Haslam et al., 2022; Haslam et al., 2024; McIntyre et al., 2018), with this thesis demonstrating how young adults use online group memberships to access existing and developing social identities for social support to protect against loneliness.

Theoretical considerations

The thesis provided qualitative insight into the experience of loneliness in young adults during the transition to university and the pandemic (Evans et al., 2022; Kirwan et al., 2024; Sundqvist et al., 2024), despite loneliness not being directly asked about. This highlighted the significance of loneliness, as the fear of experiencing loneliness seemed to be at the forefront of participants' minds and online groups were used to navigate these feelings. Previous research into the use of technology to alleviate loneliness lacks a strong theoretical underpinning (Döring et al., 2022). This thesis applied the SIAH (Haslam et al., 2018) to the exploration of online group membership being a potential virtual Social Cure, with a focus on the loneliness experienced by young adults. Social internet use can be paradoxical regarding loneliness, with connections sought online to alleviate loneliness and connection encouraging social internet use (Sheldon et al., 2011), leading to mixed findings in the literature. The quantitative findings demonstrated how identification with an online group can provide greater social support, which was associated with lower loneliness; however, the qualitative findings highlighted how a lack of connection with the online group exacerbated feeling alone. The findings supported the idea that it is *how* online groups are used that can impact the loneliness experienced (Nowland et al., 2018), as young adults described accessing valued social

identities online which provided social support, and protection against loneliness through this support and through seeking new connections to facilitate the development of a new identity. It highlighted the complexities of online group membership, such as struggling to gain a full sense of the group online and preferring to meet in-person to make an informed decision about pursuing a new identity. As such, this thesis adds to the understanding of how and why online groups are used (Kaye et al., 2024), through the application of the SIAH and demonstrate the presence of Social Cure processes in online groups.

The findings convey the complexities of developing and maintaining identities online, with young adults using online groups to access psychological resources such as social support to help manage well-being and loneliness. In line with SIMIC (Haslam et al., 2021), the current findings support the notion that group memberships can facilitate and hinder well-being during significant life transitions, through maintaining existing group memberships to gain support (Seymour-Smith et al., 2017), and developing new group memberships to adjust and protect against identity loss (Steffens et al., 2016b). The findings also extend the understanding of SIMIC, with the inclusion of how online groups are used within this model. Young adults considered technology to be a useful method of maintaining connections with existing group memberships following disruption to their social network by the pandemic and/or the transition to university (Hawkins et al., 2024). During the transition, joining new online groups relating to university depicted the start of the social identity gain pathway, although online group membership was both a facilitator and barrier to this pathway progressing, as compatibility was preferred to be assessed in-person. McNamara et al. (2024) highlighted how there has been a lack of research into the experience of identity incompatibility and questioned whether it may motivate people to assess and change their social networks. It may be that participants were conscious to assess compatibility and so used the transition as the 'motivation' for change, to either embrace supportive identities or break ties with the incompatible identity (McNamara et

al., 2021) through their use of (or lack of) online group membership, and to then develop new identities. Identity incompatibility can be detrimental for health and well-being (Iyer et al., 2009; McNamara et al., 2021), with the participants demonstrating social identity management to design a protective, supportive network in preparation for starting university. There was a fear of experiencing loneliness if they weren't to find belonging within their new groups, suggesting participants were concerned about how the transition to university would impact their social networks (Ng et al., 2018). Interestingly, participants raised the importance of transitional groups, namely, groups that were valuable during the point of transition, but which were not maintained. When seeking quantity over quality, these groups provided support, encouraged adjustment when struggling, and eased the fear of loneliness; however, these groups were later pruned if they did not fit within the identity network. These findings add to the limited research into the development of new connections during the transition to university (Thomas et al., 2017). Following the transition, developing their new student identity was seemingly the goal of many participants and while many described barriers and delays to this which created feelings of aloneness, participants also outlined how they used online, and later offline, groups to support the creation of this new identity and sense of belonging at university, supporting the inclusion of online group membership within the SIMIC.

Practical implications

This thesis adds to the growing literature on social identities in online groups (Daynes-Kearney & Gallagher, 2024; Draper & Dingle, 2021; Finn et al. 2023; McIntyre et al., 2018; Mills et al., 2024), a practical implication of this being that as our understanding of how identities may be developed and maintained online grows, this may be utilised to support these processes, and in doing so potentially improve the effectiveness of online group membership offering a virtual Social Cure. This would be of particular importance for facilitating online support groups (Daynes-Kearney & Gallagher, 2024; Mills et al., 2024), with the aim of

generating a shared sense of identity in order to support well-being and loneliness. Harris and Easterbrook (2024) suggested that online manipulations of identity salience were associated with improved well-being, suggesting that this could form the basis of identity-focused interventions.

It has been previously recommended in a systematic review of educational transitions and loneliness that future interventions aiming to support the transition to university should focus on the important contribution of social support during this time, highlighting the need for continued familial and friendship support, and for peer connections to support a sense of belonging (Sundqvist et al., 2024), which may be developed through online groups prior to starting university. The current findings support these assertions, suggesting social support and university student identity to be important tools to alleviate negative experiences such as loneliness during transitions. When considering the implications of the present thesis, the findings provide insight into how and why young adults use online group memberships to access and develop their social identities to gain support during the transition to university (Thomas et al., 2017), highlighting the benefits and complexities of engaging in these processes online. Therefore, social identities should be a key component of interventions to facilitate the transition to university going forward and future research should not overlook the contributions of online groups in developing and maintaining identities. The use of programmes such as the oSIM may provide an awareness of existing social groups which may be used to seek support from and may highlight areas of the social identity network in need of development, as demonstrated in Study 3 and the work of Cubis et al. (2023) and Streete (2020).

Furthermore, it has been raised that young adults feel unprepared for the transition to university (Buote et al., 2007), and Thompson et al. (2021) argued that while this has been established within the literature for some time, students seem to be struggling more with these issues and with increased distress. Therefore, Fardghassemi and Joffe (2022) raised it is

important to highlight prior to the transition the disruptive impact on social networks to protect against loneliness. Building on this, there is a need to normalise the experience of loneliness for young adults, to reduce the shame attached to the experience (Barreto et al., 2022; Vasileiou et al., 2019). Although, Kirwan et al. (2023) argued that as loneliness was not a solely negative experience, perhaps loneliness interventions are not always needed. However, this may be where interventions such as Groups4Health can be effective in highlighting the importance of connection and an awareness of one's social network through social scaffolding to reduce the threat of a transition to group memberships (Haslam et al., 2016; Haslam et al., 2021). The application of SIMIC is appropriate when considering increasing young adults' awareness of their social groups and the disruptiveness of transitions, and ways to address the potential experience of loneliness for young adults starting university, as this could inform potential guidelines on how to support young adults. In support of this, SIMIC has been proposed as an important guide for the development of digital loneliness interventions for older adults (Stuart et al., 2022). The potential long-lasting impact of the COVID-19 pandemic on future university cohorts means that this is an important issue for consideration for universities, as to support the social, educational, and health needs of students.

Based on the findings of this thesis, it may be beneficial for universities to highlight to new students the importance of maintaining existing group memberships through online groups, to allow greater access to social support. It would also be beneficial to provide information about the importance of this to families of students to encourage this behaviour to be practiced by family members (Lee et al., 2018), for example, encouraging family members to engage in regular contact on a family group chat to offer social support to the young adult.

Strengths and limitations

Recruiting a sample that was sufficiently large for complex analysis was a challenge encountered across the quantitative phase of the data collection in the thesis. The difficulties

recruiting an appropriate sample size and the subsequent attrition during the longitudinal study meant that the planned analysis across both Studies 1 and 2 were impacted. In Study 1, this led to a change of direction in the variables explored relating to social identification, moving from the proposed multiple online group membership variable to the salient online group variable. In Study 2, this issue meant that the longitudinal analysis did not go ahead as initially proposed. While Study 2 was able to explore the multiple online group membership variable as had been planned in Study 1, it was disappointing that Study 2 could not contribute to the longitudinal exploration of loneliness as has been recommended (Department for Digital, Culture, Media & Sport, 2023; Kirwan et al., 2024). The lack of statistical power because of the small samples sizes recruited across Studies 1 and 2 means that the results should be interpreted with caution and these relationships investigated further in future studies. It is hoped that by using an explanatory sequential design these limitations are countered to a degree through the qualitative exploration of this topic in Study 3.

Across each of the three studies, there was a disproportionate number of participants who reported being female, which has been a limitation of other samples exploring loneliness in young adults (Kirwan et al., 2024; Nielsen et al., 2024; Richardson et al. 2017; van Roekel et al., 2016). The low proportion of male participants may be reflective of the demographics within a Psychology degree course (it is estimated 80% of undergraduate Psychology students are female; Hepper, 2017), as a recruitment method was targeted toward Psychology students. While the prevalence of loneliness is higher for females than males (Kirwan et al., 2024; Victor & Yang, 2012), making the current findings useful for gaining insight into the experience of loneliness for women, there is a lack of understanding of the experience of loneliness in men, with this compounded by the stigma men report in relation to experiencing loneliness (Barretto et al., 2022). As such, it would be important to address this to explore any gender differences in the perception and experience of loneliness (van Roekel et al., 2016).

Through collecting both quantitative and qualitative data using the explanatory sequential design, the quantitative findings can be explained and developed by the qualitative findings, and the limitations of each method counterbalanced (Creswell & Plano Clark, 2018). An explanatory sequential design was chosen for the thesis, as the SIAH processes have been established within offline group membership (Charles et al., 2023; Iyer et al., 2009; Haslam et al., 2008; Sani et al. 2012), and so it was appropriate to begin the research through the exploration of these known variables (Creswell & Plano Clark, 2018). If the thesis had remained purely quantitative, it may lack depth in understanding why some of the hypothesised relationships were not supported in the analysis, and so the qualitative findings helped to provide an explanation for the quantitative findings (Creswell & Plano Clark, 2018).

This was highlighted in Study 3. Bentley et al. (2019) found that use of the oSIM was not associated with a greater awareness of group memberships for participants. However, as Study 3 was of mixed methods design with the inclusion of the oSIM in a semi-structured interview, participants described viewing the experience of mapping out their social groups as a tool to reflect on their groups and the connections between groups. This was in line with Streete (2020) recommending that there is a usefulness to the addition of the qualitative understanding of the oSIM. A possible explanation of this finding though is that as participants had already engaged in the active construction of a supportive identity network (Study 3, Chapter 7), it may be that participants brought this awareness to the study, unlike previous samples (Bentley et al., 2019).

Future research

The experience of loneliness over time is an important consideration within future work, as this would aid in understanding the intensity, duration, and when and how loneliness may be addressed (Department for Digital, Culture, Media & Sport, 2023; Kirwan et al., 2024). The findings of the thesis support the notion that it is not the time spent online that is associated

with well-being and loneliness but how the time is used (Nowland et al., 2018; Roberts & David, 2020), with the SIAH providing theoretical insight into this relationship. How people engage in online group membership to develop a sense of shared identity is also important to explore further, as online group membership could be utilised within interventions; however, there is a need to understand the mechanisms of how online group membership may be beneficial for health, well-being and loneliness. The findings of this thesis highlight that young adults engage in identity maintenance and development in online groups, with a focus on seeking social support to aid well-being. Online groups could provide access to support through developing a sense of shared identity online to populations such as carers (Daynes-Kearney & Gallagher, 2024), young adults (Finn et al., 2023), people with chronic illness (Cheung et al., 2024; Mills et al., 2024), those struggling to meet in-person (Eager et al., 2024), but as highlighted by Daynes-Kearney and Gallagher (2024), it is through the application of our theoretical understanding of the SIAH that online groups can be supported to be effective.

It would be of interest to explore how young adults utilise online group membership during the transitional period of leaving university, as this is another period during which loneliness increases (Cage et al., 2021; ONS, 2018). This could be explored through a longitudinal study to provide further exploration of how online groups may develop a sense of social identity, and how this may provide access to support. Data could be collected during the final year of university study, to gain an understanding of the online and offline groups within the social networks of young adults using the oSIM, and well-being measures. The use of the oSIM within such a study would be appropriate, as it would capture the online and offline groups within the young adults identity network and how these groups are used and may change over the transition out of university. Follow-up data collection could be carried out at 6 months following leaving university and at 12 months following the transition.

Conclusion

This thesis undertook a mixed methods explanatory sequential investigation of the role of social identities in online groups, the interplay between online and offline groups, and the impact this has on health, well-being and the experience of loneliness for young adults. The findings of this thesis suggest that online groups may be able to provide psychological resources through which young adults may improve their well-being and loneliness, similar to that in offline groups as demonstrated by the SIAH literature (Haslam et al., 2018), for example the social support received from online group membership being associated with reduced loneliness and increased satisfaction with life, and that the social support received online from important groups was vital during the COVID-19 pandemic and the transition to university for young adults. Therefore, this supported the idea that online group membership may act as a virtual 'Social Cure', and providing support for further exploration of the impact of online identification on health, well-being and loneliness.

However, this thesis also highlighted the complexities of developing new identities online, integrating the cyberpsychology, loneliness and SIAH literatures, to provide insight into how and when identities may be established online. This suggested contact with the online group, the compatibility of the group in relation to the identity network as a whole, and an opportunity to meet in-person were potentially important factors that facilitated identification online. This builds on the notion that group membership should be explored online and offline, as it is important to consider the influence of online connectedness on social identity.

This thesis provided an understanding of the experience of loneliness for young adults living in the UK, relating to how social identities (both online and offline) provided social support in order to protect against loneliness. Young adults undertook a period of evaluating and pruning their social identity networks during a period of social disruption, with the aim of

creating a supportive network that could be leaned upon when fearing being at risk of experiencing loneliness.

In summary, social identity networks have been demonstrated to comprise of group memberships that exist on an online-offline continuum, with the psychological resources that groups provide accessible through both online and offline means. Periods of transition and collective crisis may encourage young adults to evaluate their identity networks, to ensure a solid foundation from which to seek support and build new connections following this period of disruption, with the role of online groups highlighted in this thesis. Online groups, while different to offline groups, may still provide similar psychological resources and address social and psychological needs, indicating support of a virtual Social Cure. Further research is needed to better understand the ways in which this may be applied to support the effectiveness of online groups in supporting health, well-being and loneliness.

References

Achterbergh, L., Pitman, A., Birken, M., Pearce, E., Sno, H., & Johnson, S. (2020). The experience of loneliness among young people with depression: a qualitative meta-synthesis of the literature. *BMC psychiatry*, *20*, 1-23.

Akbari, M., Seydavi, M., Palmieri, S., Mansueto, G., Caselli, G., & Spada, M. M. (2021). Fear of missing out (FoMO) and internet use: A comprehensive systematic review and meta-analysis. *Journal of Behavioral Addictions*, *10*(4), 879-900.

Alfadhli, K., & Drury, J. (2018). The role of shared social identity in mutual support among refugees of conflict: An ethnographic study of Syrian refugees in Jordan. *Journal of Community & Applied Social Psychology, 28*(3), 142-155. https://doi.org/10.1002/casp.2346

Alkan, N. (2016). Psychological sense of university membership: An adaptation study of the PSSM scale for Turkish university students. *The Journal of Psychology*, *150*(4), 431-449.

Arnett, J. J. (2007). Emerging adulthood: What is it, and what is it good for?. *Child development perspectives*, *1*(2), 68-73.

Arnett, J. J., & Mitra, D. (2020). Are the features of emerging adulthood developmentally distinctive? A comparison of ages 18–60 in the United States. *Emerging Adulthood*, *8*(5), 412-419.

Ball, I., Banerjee, M., Holliman, A., & Tyndall, I. (2024). Investigating success in the transition to university: a systematic review of personal risk and protective factors influencing academic achievement. *Educational Psychology Review*, *36*(2), 1-30.

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of personality and social psychology*, *51*(6), 1173.

Barreto, M., van Breen, J., Victor, C., Hammond, C., Eccles, A., Richins, M. T., & Qualter, P. (2022). Exploring the nature and variation of the stigma associated with loneliness. *Journal of Social and Personal Relationships*, *39*(9), 2658-2679. https://doi.org/10.1177/02654075221087190

Barreto, M., Victor, C., Hammond, C., Eccles, A., Richins, M. T., & Qualter, P. (2021). Loneliness around the world: Age, gender, and cultural differences in loneliness. *Personality and individual differences*, *169*, 110066.

Barry, C. T., & Wong, M. Y. (2020). Fear of missing out (FoMO): A generational phenomenon or an individual difference?. *Journal of Social and Personal Relationships*, *37*(12), 2952-2966.

Beam, C. R., & Kim, A. J. (2020). Psychological sequelae of social isolation and loneliness might be a larger problem in young adults than older adults. *Psychological trauma: Theory, research, practice, and policy*, *12*(S1), S58.

Beckwith, M., Best, D., Savic, M., Haslam, C., Bathish, R., Dingle, G., ... & Lubman, D. I. (2019). Social identity mapping in addiction recovery (SIM-AR): Extension and application of a visual method. *Addiction Research & Theory*, *27*(6), 462-471.

Bender, J. L., Katz, J., Ferris, L. E., & Jadad, A. R. (2013). What is the role of online support from the perspective of facilitators of face-to-face support groups? A multi-method study of the use of breast cancer online communities. *Patient education and counselling*, *93*(3), 472-479.

Bentley, S. V., Greenaway, K. H., Haslam, S. A., Cruwys, T., Steffens, N. K., Haslam, C., & Cull, B. (2020). Social identity mapping online. *Journal of personality and social psychology*, *118*(2), 213.

Berezan, O., Krishen, A. S., Agarwal, S., & Kachroo, P. (2020). Exploring loneliness and social networking: Recipes for hedonic well-being on Facebook. *Journal of Business Research*, *115*, 258-265.

Berzin, S. C. (2010). Vulnerability in the transition to adulthood: Defining risk based on youth profiles. *Children and youth services review*, *32*(4), 487-495.

Best, D., Bliuc, A. M., Iqbal, M., Upton, K., & Hodgkins, S. (2018). Mapping social identity change in online networks of addiction recovery. *Addiction Research & Theory*, *26*(3), 163-173.

Beutel, M. E., Klein, E. M., Brähler, E., Reiner, I., Jünger, C., Michal, M., ... & Tibubos, A. N. (2017). Loneliness in the general population: prevalence, determinants and relations to mental health. *BMC psychiatry*, *17*, 1-7.

Beyens, I., Frison, E., & Eggermont, S. (2016). "I don't want to miss a thing": Adolescents' fear of missing out and its relationship to adolescents' social needs, Facebook use, and Facebook related stress. *Computers in human behavior*, *64*, 1-8.

Binder, J. F., Howes, A., & Smart, D. (2012). Harmony and tension on social network sites: Side-effects of increasing online interconnectivity. Information, Communication & Society, 15(9), 1279-1297. doi: 10.1080/1369118x.2011.648949

Binte Mohammad Adib, N. A., & Sabharwal, J. K. (2024). Experience of loneliness on well-being among young individuals: A systematic scoping review. *Current Psychology*, *43*(3), 1965-1985.

Birken, M., Chipp, B., Shah, P., Olive, R. R., Nyikavaranda, P., Hardy, J., ... & Johnson, S. (2023). Exploring the experiences of loneliness in adults with mental health problems: A participatory qualitative interview study. *Plos one*, *18*(3), Article e0280946.

Bliuc, A. M., Best, D., Iqbal, M., & Upton, K. (2017). Building addiction recovery capital through online participation in a recovery community. *Social Science & Medicine*, *193*, 110-117.

Bliuc, A. M., Doan, T. N., & Best, D. (2019). Sober social networks: The role of online support groups in recovery from alcohol addiction. *Journal of community & applied social psychology*, *29*(2), 121-132.

Bowe, M., Gray, D., Stevenson, C., McNamara, N., Wakefield, J. R., Kellezi, B., ... & Costa, S. (2020). A social cure in the community: A mixed-method exploration of the role of social identity in the experiences and well-being of community volunteers. *European Journal of Social Psychology*, *50*(7), 1523-1539.

Bowe, M., Wakefield, J. R., Kellezi, B., Stevenson, C., McNamara, N., Jones, B. A., ... & Heym, N. (2022). The mental health benefits of community helping during crisis: Coordinated helping, community identification and sense of unity during the COVID-19 pandemic. *Journal of Community & Applied Social Psychology*, *32*(3), 521-535.

Bowlby, J. (1969). *Attachment and loss: Vol. 1. Attachment*. Basic Books.

boyd, D. M., & Ellison, N. B. (2007). Social network sites: Definition, history, and scholarship. *Journal of computer-mediated Communication*, *13*(1), 210-230.

Brandtzaeg, P. B., & Lüders, M. (2018). Time collapse in social media: Extending the context collapse. *Social Media + Society*, *4*(1), 2056305118763349.

Braun, V. & Clarke, V. (2022). *Thematic analysis: A practical guide.* SAGE.

Brett, C. E., Mathieson, M. L., & Rowley, A. M. (2023). Determinants of wellbeing in university students: The role of residential status, stress, loneliness, resilience, and sense of coherence. *Current Psychology*, *42*(23), 19699-19708.

British Psychological Society. (2021). Code of Ethics and Conduct. [Code of Ethics and Conduct | BPS](#)

Brown, G., & Greenfield, P. M. (2021). Staying connected during stay-at-home: Communication with family and friends and its association with well-being. *Human Behavior and Emerging Technologies*, *3*(1), 147-156.

Bu, F., Steptoe, A., & Fancourt, D. (2020). Loneliness during a strict lockdown: Trajectories and predictors during the COVID-19 pandemic in 38,217 United Kingdom adults. *Social science & medicine*, *265*, 113521.

Buglass, S. L., Binder, J. F., Betts, L. R., & Underwood, J. D. (2016). When 'friends' collide: Social heterogeneity and user vulnerability on social network sites. *Computers in Human Behavior*, *54*, 62-72.

Buglass, S. L., Binder, J. F., Betts, L. R., & Underwood, J. D. (2017). Motivators of online vulnerability: The impact of social network site use and FOMO. *Computers in Human Behavior*, *66*, 248-255.

Buote, V. M., Pancer, S. M., Pratt, M. W., Adams, G., Birnie-Lefcovitch, S., Polivy, J., & Wintre, M. G. (2007). The importance of friends: Friendship and adjustment among 1st-year university students. *Journal of adolescent research*, *22*(6), 665-689.

Burke, M., & Kraut, R. E. (2016). The relationship between Facebook use and well-being depends on communication type and tie strength. *Journal of Computer-Mediated Communication*, *21*(4), 265-281.

Burke, M., Kraut, R., & Marlow, C. (2011). Social capital on Facebook: Differentiating uses and users. *Proceedings of the SIGCHI conference on human factors in computing systems* (pp. 571-580).

Burke, P. J., Owens, T.J., Serpe, R.T., & Thoits, P.A. (Eds.). (2003). *Advances in Identity Theory and Research*. Kluwer Academic/Plenum Publishers.

Caba Machado, V., Mcilroy, D., Padilla Adamuz, F. M., Murphy, R., & Palmer-Conn, S. (2023). The associations of use of social network sites with perceived social support and loneliness. *Current Psychology*, *42*(17), 14414-14427.

Cabinet Office. (2022, May 6). *COVID-19 Response: Living with COVID-19*. [COVID-19 Response: Living with COVID-19 - GOV.UK](#)

Cacioppo, J. T., & Cacioppo, S. (2018). Loneliness in the modern age: An evolutionary theory of loneliness (ETL). In *Advances in experimental social psychology* (Vol. 58, pp. 127-197). Academic press.

Cacioppo, S., Capitanio, J. P., & Cacioppo, J. T. (2014). Toward a neurology of loneliness. *Psychological Bulletin*, *140*(6), 1464.

Cacioppo, J. T., & Hawkley, L. C. (2009). Perceived social isolation and cognition. *Trends in cognitive sciences*, *13*(10), 447-454.

Cacioppo, J. T., Hawkley, L. C., Ernst, J. M., Burleson, M., Berntson, G. G., Nouriani, B., & Spiegel, D. (2006). Loneliness within a nomological net: An evolutionary perspective. *Journal of research in personality*, *40*(6), 1054-1085.

Cage, E., Jones, E., Ryan, G., Hughes, G. & Spanner, L. (2021). Student mental health and transitions into, through and out of university: student and staff perspectives. *Journal of Further and Higher Education, 45*(8), 1076-1089.

Carstensen, L. L. (2021). Socioemotional selectivity theory: The role of perceived endings in human motivation. *The Gerontologist*, *61*(8), 1188-1196.

Chan, M. (2014). Multimodal connectedness and quality of life: Examining the influences of technology adoption and interpersonal communication on well-being across the life span. *Journal of Computer-Mediated Communication, 20(1)*, 3-18.

Chang, J. P., Cheng, J., & Danescu-Niculescu-Mizil, C. (2020). Don't let me be misunderstood: Comparing intentions and perceptions in online discussions. *Proceedings of The Web Conference 2020* (pp. 2066-2077).

Charles, S. J., Stevenson, C., Wakefield, J. R., & Fino, E. (2023). Diversity of Group Memberships Predicts Well-Being: Cross-Sectional and Longitudinal Evidence. *Personality and Social Psychology Bulletin*, 01461672231202278.

Cheung, M. M. Y., Lewis, S., Raja, R., Willis, K., Dubbin, L., Rogers, A., ... & Smith, L. (2024). Disruption and Improvisation: Experiences of Loneliness for People with Chronic Illness. *Qualitative Health Research*, 10497323241265329.

Christiansen, J., Pedersen, S. S., Andersen, C. M., Qualter, P., Lund, R., & Lasgaard, M. (2023). Loneliness, social isolation, and healthcare utilization in the general population. *Health Psychology*, *42*(2), 63.

Christiansen, J., Qualter, P., Friis, K., Pedersen, S. S., Lund, R., Andersen, C. M., ... & Lasgaard, M. (2021). Associations of loneliness and social isolation with physical and mental health among adolescents and young adults. *Perspectives in public health*, *141*(4), 226-236.

Clark, J. L., Algoe, S. B., & Green, M. C. (2018). Social network sites and well-being: the role of social connection. *Current Directions in Psychological Science*, *27*(1), 32-37.

Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences (2nd ed.).* Lawrence Erlbaum Associates.

Conneely, M., Giacco, D., Hickling, L. M., Priebe, S., & Jones, J. M. (2024). Social Identity Mapping and Psychotic Disorders: Understanding the relationships between social identity features, self-esteem, and quality of life. *Clinical Psychological Science*, Article 21677026241263522. https://doi.org/10.1177/21677026241263522

Conrad, R. C., Koire, A., Pinder-Amaker, S., & Liu, C. H. (2021). College student mental health risks during the COVID-19 pandemic: Implications of campus relocation. *Journal of psychiatric research*, *136*, 117-126.

Coulson, N. S. (2013). How do online patient support communities affect the experience of inflammatory bowel disease? An online survey. *JRSM short reports*, *4*(8), 2042533313478004.

Coyne, S. M., Rogers, A. A., Zurcher, J. D., Stockdale, L., & Booth, M. (2020). Does time spent using social media impact mental health?: An eight year longitudinal study. *Computers in human behavior*, *104*, 106160.

Creswell, J.W. & Plano Clark, V.L. (2018). *Designing and conducting mixed methods research* (3rd ed.). SAGE.

Cruwys, T., Haslam, C., Steffens, N. K., Haslam, S. A., Fong, P., & Lam, B. C. (2019). Friendships that money can buy: Financial security protects health in retirement by enabling social connectedness. *BMC geriatrics*, *19*, 1-9.

Cruwys, T., Haslam, S. A., Dingle, G. A., Haslam, C., & Jetten, J. (2014). Depression and social identity: An integrative review. *Personality and Social Psychology Review*, *18*(3), 215-238.

Cruwys, T., Ng, N. W., Haslam, S. A., & Haslam, C. (2020). Identity continuity protects international student academic performance, retention, and life satisfaction: A longitudinal examination of the Social Identity Model of Identity Change. *Applied Psychology*, *70*(3), 931-954.

Cruwys, T., Steffens, N. K., Haslam, S. A., Haslam, C., Jetten, J., & Dingle, G. A. (2016). Social Identity Mapping: A procedure for visual representation and assessment of subjective multiple group memberships. *British Journal of Social Psychology*, *55*(4), 613-642.

Cruwys, T., Wakefield, J. R., Sani, F., Dingle, G. A., & Jetten, J. (2018). Social isolation predicts frequent attendance in primary care. *Annals of Behavioral Medicine*, *52*(10), 817-829.

Cubis, L., Ownsworth, T., Pinkham, M. B., Foote, M., Green, H., & Chambers, S. (2023). "Hey, I'm still here!": Maintaining, managing and rebuilding social connections after brain tumour. *Neuropsychological Rehabilitation*, *33*(3), 454-479.

Czenczek-Lewandowska, E., Wyszyńska, J., Leszczak, J., Baran, J., Weres, A., Mazur, A., & Lewandowski, B. (2021). Health behaviours of young adults during the outbreak of the Covid-19 pandemic–a longitudinal study. *BMC Public Health*, *21*(1), 1038.

Daffern, H., Balmer, K., & Brereton, J. (2021). Singing together, yet apart: The experience of UK choir members and facilitators during the Covid-19 pandemic. *Frontiers in psychology*, *12*, 624474.

David, M. E., & Roberts, J. A. (2021). Smartphone use during the COVID-19 pandemic: Social versus physical distancing. *International Journal of Environmental Research and Public Health*, *18*(3), 1034.

Daynes-Kearney, R., Gallagher, S. (2024). Social Identity and Online Support Groups: A Qualitative Study with Family Caregivers. *Int.J. Behav. Med.* **31**, 479–490. https://doi.org/10.1007/s12529-023-10203-z

DeAndrea, D. C., Ellison, N. B., LaRose, R., Steinfield, C., & Fiore, A. (2012). Serious social media: On the use of social media for improving students' adjustment to college. *The Internet and higher education*, *15*(1), 15-23.

Department for Digital, Culture, Media & Sport. (2019, January 17). *Community Life Survey: Focus on Loneliness*. https://www.gov.uk/government/statistics/community-life-survey-focus-on-loneliness

Department for Digital, Culture, Media & Sport. (2023, March 17). *Tackling loneliness evidence review: main report*. Tackling loneliness evidence review: main report - GOV.UK (www.gov.uk)

Deutskens, E., De Ruyter, K., Wetzels, M., & Oosterveld, P. (2004). Response rate and response quality of internet-based surveys: An experimental study. *Marketing letters*, *15*, 21-36.

Diehl, K., Jansen, C., Ishchanova, K., & Hilger-Kolb, J. (2018). Loneliness at universities: determinants of emotional and social loneliness among students. *International journal of environmental research and public health*, *15*(9), 1865.

Diener, E. D., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of personality assessment*, *49*(1), 71-75.

Dingle, G. A., Han, R., & Carlyle, M. (2022). Loneliness, belonging, and mental health in Australian university students pre-and post-COVID-19. *Behaviour Change*, *39*(3), 146-156.

DiTommaso, E., & Spinner, B. (1997). Social and emotional loneliness: A re-examination of Weiss' typology of loneliness. *Personality and individual differences*, *22*(3), 417-427.

Döring, N., Conde, M., Brandenburg, K., Broll, W., Gross, H. M., Werner, S., & Raake, A. (2022). Can communication technologies reduce loneliness and social isolation in older people? A scoping review of reviews. *International journal of environmental research and public health*, *19*(18), 11310.

Draper, G., & Dingle, G. A. (2021). "It's not the same": A comparison of the psychological needs satisfied by musical group activities in face to face and virtual modes. *Frontiers in Psychology*, *12*, 646292.

Drury, J. (2018). The role of social identity processes in mass emergency behaviour: An integrative review. *European review of social psychology*, *29*(1), 38-81.

Drury, J., Reicher, S., & Stott, C. (2020). COVID-19 in context: Why do people die in emergencies? It's probably not because of collective psychology. *British Journal of Social Psychology*, *59*(3), 686-693.

Dunbar, R. I. (2012). Social cognition on the Internet: testing constraints on social network size. *Philosophical Transactions of the Royal Society B: Biological Sciences*, *367*(1599), 2192-2201.

Eager, S., Johnson, S., Pitman, A., Uribe, M., Qualter, P., & Pearce, E. (2024). Young people's views on the acceptability and feasibility of loneliness interventions for their age group. *BMC psychiatry*, *24*(1), 308.

Eccles, A. M., & Qualter, P. (2021). Alleviating loneliness in young people–a meta-analysis of interventions. *Child and Adolescent Mental Health*, *26*(1), 17-33.

Elcheroth, G., & Drury, J. (2020). Collective resilience in times of crisis: Lessons from the literature for socially effective responses to the pandemic. *British Journal of Social Psychology*, *59*(3), 703-713.

Ellard, O. B., Dennison, C., & Tuomainen, H. (2023). Interventions addressing loneliness amongst university students: a systematic review. *Child and adolescent mental health*, *28*(4), 512-523.

Ellison, N. B., Steinfield, C., & Lampe, C. (2007). The benefits of Facebook "friends:" Social capital and college students' use of online social network sites. *Journal of computer-mediated communication*, *12*(4), 1143-1168.

Ellison, N. B., Steinfield, C., & Lampe, C. (2011). Connection strategies: Social capital implications of Facebook-enabled communication practices. *New media & society*, *13*(6), 873-892.

Elo, S., & Kyngäs, H. (2008). The qualitative content analysis process. *Journal of advanced nursing*, *62*(1), 107-115.

Ernst, M., Niederer, D., Werner, A. M., Czaja, S. J., Mikton, C., Ong, A. D., Rosen, T., Brähler, E., & Beutel, M. E. (2022). Loneliness before and during the COVID-19 pandemic: A systematic review with meta-analysis. *American Psychologist, 77*(5), 660–677. https://doi.org/10.1037/amp0001005

Evans, O., Cruwys, T., Cárdenas, D., Wu, B., & Cognian, A. V. (2022). Social identities mediate the relationship between isolation, life transitions, and loneliness. *Behaviour Change*, *39*(3), 191-204.

Evans, J. R., & Mathur, A. (2005). The value of online surveys. *Internet research*, *15*(2), 195-219.

Fahy, M., & Barry, M. (2024). Investigating the interplay of loneliness, computer-mediated communication, online social capital, and well-being: insights from a COVID-19 lockdown study. *Frontiers in Digital Health*, *6*. https://doi.org/10.3389/fdgth.2024.1289451

Fardghassemi, S., & Joffe, H. (2021). Young adults' experience of loneliness in London's most deprived areas. *Frontiers in Psychology*, *12*, 660791.

Fardghassemi, S., & Joffe, H. (2022). The causes of loneliness: The perspective of young adults in London's most deprived areas. *Plos one*, *17*(4), Article e0264638.

Farrell, O., Brunton, J., & Trevaskis, S. (2020). 'If I had missed it I would have been the lost little sheep': Exploring student narratives on orientation to first year. *Journal of Further and Higher Education*, *44*(7), 865-876.

Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G* Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior research methods*, *39*(2), 175-191.

Finn, S., Wright, L. H., Mak, H. W., Åström, E., Nicholls, L., Dingle, G. A., & Warran, K. (2023). Expanding the social cure: a mixed-methods approach exploring the role of online group

dance as support for young people (aged 16–24) living with anxiety. *Frontiers in Psychology*, *14*, 1258967.

Foran, A. M., Muldoon, O. T., & O'Donnell, A. T. (2021). Identity processes and eating disorder symptoms during university adjustment: a cross-sectional study. *Journal of Eating Disorders*, *9*, 1-9.

Fox-Wasylyshyn, S. M., & El-Masri, M. M. (2005). Handling missing data in self-report measures. *Research in nursing & health*, *28*(6), 488-495.

Fritz, M. S., & MacKinnon, D. P. (2007). Required sample size to detect the mediated effect. *Psychological science*, *18*(3), 233-239.

Gardiner, C., Geldenhuys, G., & Gott, M. (2018). Interventions to reduce social isolation and loneliness among older people: an integrative review. *Health & social care in the community*, *26*(2), 147-157.

Garnow, T., Einberg, E. L., Edberg, A. K., & Garmy, P. (2024). Adolescents' Experiences of Existential Loneliness Regarding Receiving and Providing Support. *Issues in Mental Health Nursing*, 1-9.

Glowacz, F., & Schmits, E. (2020). Psychological distress during the COVID-19 lockdown: The young adults most at risk. *Psychiatry research*, *293*, Article 113486.

Goodfellow, C., Hardoon, D., Inchley, J., Leyland, A. H., Qualter, P., Simpson, S. A., & Long, E. (2022). Loneliness and personal well-being in young people: Moderating effects of individual, interpersonal, and community factors. *Journal of Adolescence*, *94*(4), 554-568.

GOV.UK (2018, June 18). £20 million investment to help tackle loneliness. https://www.gov.uk/government/news/20-million-investment-to-help-tackle-loneliness

GOV.UK (2022, May 27). *Government's work on tackling loneliness.*

https://www.gov.uk/government/collections/governments-work-on-tackling-loneliness

Graupensperger, S., Calhoun, B. H., Patrick, M. E., & Lee, C. M. (2022). Longitudinal effects of COVID-19-related stressors on young adults' mental health and wellbeing. *Applied Psychology: Health and Well-Being*, *14*(3), 734-756.

Greenaway, K. H., Cruwys, T., Haslam, S. A., and Jetten, J. (2016) Social identities promote well-being because they satisfy global psychological needs. *Eur. J. Soc. Psychol.*, 46: 294–307. doi: 10.1002/ejsp.2169.

Grieve, R., Indian, M., Witteveen, K., Tolan, G. A., & Marrington, J. (2013). Face-to-face or Facebook: Can social connectedness be derived online? *Computers in human behavior*, *29*(3), 604-609.

Groarke, J. M., Berry, E., Graham-Wisener, L., McKenna-Plumley, P. E., McGlinchey, E., & Armour, C. (2020). Loneliness in the UK during the COVID-19 pandemic: Cross-sectional results from the COVID-19 Psychological Wellbeing Study. *PloS one*, *15*(9), e0239698.

Grozev, V. H., Easterbrook, M. J., & Jessop, D. C. (2024). Discipline identification, identity incompatibility, belonging and their association with deep approaches to learning and academic self-efficacy during COVID-19 in the UK. *European Journal of Psychology of Education*, *39*(2), 785-812.

Halder, M. M., Wakefield, J. R., Bowe, M., Kellezi, B., Mair, E., McNamara, N., ... & Stevenson, C. (2021). Evaluation and exploration of a social prescribing initiative: study protocol. *Journal of health psychology*, *26*(3), 345-356.

Hammond, C. (2018). *Who feels lonely? The results of the world's largest loneliness study.* [BBC Radio 4 - The Anatomy of Loneliness - Who feels lonely? The results of the world's largest loneliness study](#)

Harris, P. R., & Easterbrook, M. J. (2024). Groups or values? Testing the effectiveness of online social cure, group-affirmation, and self-affirmation manipulations on wellbeing outcomes. *Journal of Community & Applied Social Psychology*, *34*(2), e2774.

Haslam, C., Cruwys, T., Haslam, S. A., Dingle, G., & Chang, M. X. L. (2016). Groups 4 Health: Evidence that a social-identity intervention that builds and strengthens social group membership improves mental health. *Journal of affective disorders*, *194*, 188-195.

Haslam, C., Haslam, S. A., Jetten, J., Cruwys, T., & Steffens, N. K. (2021). Life change, social identity, and health. *Annual Review of Psychology*, *72*(1), 635-661.

Haslam, C., Holme, A., Haslam, S. A., Iyer, A., Jetten, J., & Williams, W. H. (2008). Maintaining group memberships: Social identity continuity predicts well-being after stroke. *Neuropsychological rehabilitation*, *18*(5-6), 671-691.

Haslam, C., Jetten, J., Cruwys, T., Dingle, G., & Haslam, S. A. (2018). *The new psychology of health: Unlocking the social cure.* Routledge.

Haslam, S. A., Haslam, C., Cruwys, T., Jetten, J., Bentley, S. V., Fong, P., & Steffens, N. K. (2022). Social identity makes group-based social connection possible: Implications for loneliness and mental health. *Current opinion in psychology*, *43*, 161-165.

Haslam, S. A., Haslam, C., Cruwys, T., Sharman, L. S., Hayes, S., Walter, Z., ... & Dingle, G. (2024). Tackling loneliness together: A three-tier social identity framework for social prescribing. *Group Processes & Intergroup Relations, 27*(5), 1128-1150.

Haslam, S. A., Jetten, J., O'Brien, A., & Jacobs, E. (2004). Social identity, social influence and reactions to potentially stressful tasks: Support for the self-categorization model of stress. *Stress and Health: Journal of the International Society for the Investigation of Stress*, *20*(1), 3-9.

Haslam, S. A., McMahon, C., Cruwys, T., Haslam, C., Jetten, J., & Steffens, N. K. (2018). Social cure, what social cure? The propensity to underestimate the importance of social factors for health. *Social science & medicine*, *198*, 14-21.

Haslam, S. A., O'Brien, A., Jetten, J., Vormedal, K., & Penna, S. (2005). Taking the strain: Social identity, social support, and the experience of stress. *British journal of social psychology*, *44*(3), 355-370.

Haslam, S. A., Reicher, S. D., & Levine, M. (2012). When other people are heaven when other people are hell: How social identity determines the nature and impact of social support. In Jetten, J., Haslam, C. & Haslam, S.A. (Eds.), *The social cure: Identity, health and well-being* (pp. 157-174). Routledge.

Häusser, J. A., Junker, N. M., & van Dick, R. (2020). The how and the when of the social cure: A conceptual model of group-and individual-level mechanisms linking social identity to health and well-being. *European Journal of Social Psychology*, *50*(4), 721-732.

Hawkins, J., D'Aniello-Heyda, C., Fife, S., Cravens, J. P., & Bean, R. (2024). Emerging Adults' Experiences of Managing Social Group Disruptions. *Emerging Adulthood*, *12*(3), 346-357. https://doi.org/10.1177/21676968241233137

Hawkley, L. C., Buecker, S., Kaiser, T., & Luhmann, M. (2022). Loneliness from young adulthood to old age: Explaining age differences in loneliness. *International journal of behavioral development*, *46*(1), 39-49.

Hayes, A. F. (2022). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (3rd ed.). The Guilford Press.

Hayes, S., Carlyle, M., Haslam, S. A., Haslam, C., & Dingle, G. (2022). Exploring links between social identity, emotion regulation, and loneliness in those with and without a history of mental illness. *British Journal of Clinical Psychology*, *61*(3), 701-734.

Hemberg, J., Östman, L., Korzhina, Y., Groundstroem, H., Nyström, L., & Nyman-Kurkiala, P. (2022). Loneliness as experienced by adolescents and young adults: An explorative qualitative study. *International Journal of Adolescence and Youth*, *27*(1), 362-384.

Hemberg, J., Sundqvist, A., Korzhina, Y., Östman, L., Gylfe, S., Gädda, F., ... & Nyman-Kurkiala, P. (2024). Being young in times of uncertainty and isolation: adolescents' experiences of well-being, health and loneliness during the COVID-19 pandemic. *International Journal of Adolescence and Youth*, *29*(1), 2302102.

Hepper, P. (2017, April 27). *Athena Swan Department Application.* Filetoupload,783783,en.pdf (qub.ac.uk)

HESA (2023, January 19). *Higher education student statistics.* Higher Education Student Statistics: UK, 2021/22 | HESA

Hobbs, W. R., Burke, M., Christakis, N. A., & Fowler, J. H. (2016). Online social integration is associated with reduced mortality risk. *Proceedings of the National Academy of Sciences*, *113*(46), 12980-12984.

Hogg, M. A., & Reid, S. A. (2006). Social identity, self-categorization, and the communication of group norms. *Communication theory*, *16*(1), 7-30.

Holt-Lunstad, J. (2021). A pandemic of social isolation?. *World Psychiatry*, *20*(1), 55.

Holt-Lunstad, J., Smith, T. B., Baker, M., Harris, T., & Stephenson, D. (2015). Loneliness and social isolation as risk factors for mortality: a meta-analytic review. *Perspectives on psychological science*, *10*(2), 227-237.

Holt-Lunstad, J., Smith, T. B., & Layton, J. B. (2010). Social relationships and mortality risk: a meta-analytic review. *PLoS medicine*, *7*(7), Article e1000316.

Horigian, V. E., Schmidt, R. D., & Feaster, D. J. (2021). Loneliness, mental health, and substance use among US young adults during COVID-19. *Journal of psychoactive drugs*, *53*(1), 1-9.

Hornsey, M. J. (2008). Social identity theory and self-categorization theory: A historical review. *Social and personality psychology compass*, *2*(1), 204-222.

Howard, M. C., & Magee, S. M. (2013). To boldly go where no group has gone before: An analysis of online group identity and validation of a measure. *Computers in Human Behavior*, *29*(5), 2058-2071.

Hughes, G., Moore, L., Hennessy, M., Sandset, T., Jentoft, E. E., & Haldar, M. (2024). What kind of a problem is loneliness? Representations of connectedness and participation from a study of telepresence technologies in the UK. *Frontiers in Digital Health*, *6*, Article 1304085.

Hughes, G., & Smail, O. (2015). Which aspects of university life are most and least helpful in the transition to HE? A qualitative snapshot of student perceptions. *Journal of Further and Higher Education*, *39*(4), 466-480.

Hughes, M. E., Waite, L. J., Hawkley, L. C., & Cacioppo, J. T. (2004). A short scale for measuring loneliness in large surveys: Results from two population-based studies. *Research on aging*, *26*(6), 655-672.

Hutten, E., Jongen, E. M., Vos, A. E., van den Hout, A. J., & van Lankveld, J. J. (2021). Loneliness and mental health: the mediating effect of perceived social support. *International journal of environmental research and public health*, *18*(22), Article 11963.

Hysing, M., Petrie, K. J., Bøe, T., Lønning, K. J., & Sivertsen, B. (2020). Only the lonely: a study of loneliness among university students in Norway. *Clinical psychology in Europe*, *2*(1). https://doi.org/10.32872/cpe.v2i1.2781

IBM Corp. Released 2023. IBM SPSS Statistics for Windows, Version 29. IBM Corp.

Institute for Government. (2022). *Timeline of UK government coronavirus lockdowns and restrictions*. timeline-coronavirus-lockdown-december-2021 (instituteforgovernment.org.uk)

Ivankova, N. V., Creswell, J. W., & Stick, S. L. (2006). Using mixed-methods sequential explanatory design: From theory to practice. *Field methods*, *18*(1), 3-20.

Iyer, A., Jetten, J., Tsivrikos, D., Postmes, T., & Haslam, S. A. (2009). The more (and the more compatible) the merrier: Multiple group memberships and identity compatibility as predictors of adjustment after life transitions. *British Journal of Social Psychology*, *48*(4), 707-733.

Jetten, J., Haslam, C. & Haslam, S. A. (Eds.). (2012). *The Social Cure: Identity, Health and Well-being*. Routledge.

Jetten, J., Haslam, C., Haslam, S. A., & Branscombe, N. R. (2009). The social cure. *Scientific american mind*, *20*(5), 26-33.

Jetten, J., Haslam, S. A., Cruwys, T., Greenaway, K. H., Haslam, C., & Steffens, N. K. (2017). Advancing the social identity approach to health and well-being: Progressing the social cure research agenda. *European journal of social psychology*, *47*(7), 789-802.

Jones, B. A., Bowe, M., McNamara, N., Guerin, E., & Carter, T. (2023). Exploring the mental health experiences of young trans and gender diverse people during the Covid-19 pandemic. *International Journal of Transgender Health*, *24*(3), 292-304.

Jones, J. M., & Hynie, M. (2017). Similarly torn, differentially shorn? The experience and management of conflict between multiple roles, relationships, and social categories. *Frontiers in psychology*, *8*, 1732. https://doi.org/10.3389/fpsyg.2017.01732

Jones, J. M., & Jetten, J. (2011). Recovering from strain and enduring pain: Multiple group memberships promote resilience in the face of physical challenges. *Social Psychological and Personality Science*, *2*(3), 239-244.

Käcko, E., Hemberg, J., & Nyman-Kurkiala, P. (2024). The double-sided coin of loneliness and social media–young adults' experiences and perceptions. *International Journal of Adolescence and Youth*, *29*(1), Article 2306889.

Kan, C., Adamson, J., Cruwys, T., Cardi, V., & Treasure, J. (2018, October). Social identity mapping in anorexia nervosa. [Poster session]. Eating Disorder Research Society, Sydney, Australia. (PDF) Social identity mapping in anorexia nervosa (researchgate.net)

Kaye, L. K., Egan, I. M., Rowe, B., & Taylor, J. (2024). A qualitative study exploring behaviors which underpin different types of social media use. *Psychology of Popular Media*. https://doi.org/10.1037/ppm0000533

Kellezi, B., Wakefield, J. R. H., Stevenson, C., McNamara, N., Mair, E., Bowe, M., ... & Halder, M. M. (2019). The social cure of social prescribing: a mixed-methods study on the benefits of social connectedness on quality and effectiveness of care provision. *BMJ open*, *9*(11), Article e033137.

Kerr, N. A., & Stanley, T. B. (2021). Revisiting the social stigma of loneliness. *Personality and Individual Differences*, *171*, 110482.

Kessler, R. C., Andrews, G., Colpe, L. J., Hiripi, E., Mroczek, D. K., Normand, S. L., ... & Zaslavsky, A. M. (2002). Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychological medicine*, *32*(6), 959-976.

Kirwan, E. M., Burns, A., O'Súilleabháin, P. S., Summerville, S., McGeehan, M., McMahon, J., ... & Creaven, A. M. (2024). Loneliness in emerging adulthood: A scoping review. *Adolescent Research Review*, 1-21.

Kirwan, E. M., O'Súilleabháin, P. S., Burns, A., Ogoro, M., Allen, E., & Creaven, A.-M. (2023). Exploring Loneliness in Emerging Adulthood: A Qualitative Study. *Emerging Adulthood*, *11*(6), 1433-1445. https://doi.org/10.1177/21676968231194380

Knudsen, A. K., Lervik, L. V., Harvey, S. B., Løvvik, C. M. S., Omenås, A. N., & Mykletun, A. (2012). Comparison of chronic fatigue syndrome/myalgic encephalopathy with other disorders: an observational study. *JRSM short reports*, *3*(5), 1-7.

Korzhina, Y., Hemberg, J., Nyman-Kurkiala, P., & Fagerström, L. (2022). Causes of involuntary loneliness among adolescents and young adults: An integrative review. *International Journal of Adolescence and Youth*, *27*(1), 493-514.

Kraus, L. A., Davis, M. H., Bazzini, D., Church, M., & Kirchman, C. M. (1993). Personal and social influences on loneliness: The mediating effect of social provisions. *Social Psychology Quarterly*, 37-53.

Kross, E., Verduyn, P., Sheppes, G., Costello, C. K., Jonides, J., & Ybarra, O. (2021). Social media and well-being: Pitfalls, progress, and next steps. *Trends in cognitive sciences*, *25*(1), 55-66.

Kulcar, V., Bork-Hüffer, T., & Schneider, A. M. (2022). Getting through the crisis together: do friendships contribute to university students' resilience during the COVID-19 pandemic?. *Frontiers in psychology*, *13*, 880646.

Kyne, S. H., & Thompson, C. D. (2020). The COVID Cohort: Student transition to university in the face of a global pandemic. *Journal of Chemical Education*, *97*(9), 3381-3385.

Langford, C. P. H., Bowsher, J., Maloney, J. P., & Lillis, P. P. (1997). Social support: a conceptual analysis. *Journal of advanced nursing*, *25*(1), 95-100.

Lansford, J. E., Sherman, A. M., & Antonucci, T. C. (1998). Satisfaction with social networks: an examination of socioemotional selectivity theory across cohorts. *Psychology and aging*, *13*(4), 544.

La Rue, C. J., Haslam, C., Bentley, S. V., Lam, B. C., Steffens, N. K., Branscombe, N. R., ... & Cruwys, T. (2024). GROUPS 4 RETIREMENT: A new intervention that supports well-being in the lead-up to retirement by targeting social identity management. *Journal of Occupational and Organizational Psychology*, *97*(1), 1-26.

Leary, M. R., & Kowalski, R. M. (1990). Impression management: A literature review and two-component model. *Psychological bulletin*, *107*(1), 34.

Lee, C. M., Cadigan, J. M., & Rhew, I. C. (2020). Increases in loneliness among young adults during the COVID-19 pandemic and association with increases in mental health problems. *Journal of Adolescent Health*, *67*(5), 714-717.

Lee, C. Y. S., & Goldstein, S. E. (2016). Loneliness, stress, and social support in young adulthood: Does the source of support matter?. *Journal of youth and adolescence*, *45*, 568-580.

Lee, C. Y. S., Goldstein, S. E., & Dik, B. J. (2018). The relational context of social support in young adults: Links with stress and well-being. *Journal of Adult Development*, *25*, 25-36.

Lemyre, A., Palmer-Cooper, E., & Messina, J. P. (2023). Wellbeing among university students during the COVID-19 pandemic: a systematic review of longitudinal studies. *Public health*, *222*, 125-133.

Levine, M., Prosser, A., Evans, D., & Reicher, S. (2005). Identity and emergency intervention: How social group membership and inclusiveness of group boundaries shape helping behavior. *Personality and social psychology bulletin*, *31*(4), 443-453.

Li, Y., & Spini, D. (2022). Intersectional social identities and loneliness: Evidence from a municipality in Switzerland. *Journal of Community Psychology*, *50*(8), 3560-3573.

Lim, M. H., Rodebaugh, T. L., Eres, R., Long, K. M., Penn, D. L., & Gleeson, J. F. (2019). A pilot digital intervention targeting loneliness in youth mental health. *Frontiers in psychiatry*, *10*, 453345.

Lin, S., Liu, D., Niu, G., & Longobardi, C. (2022). Active social network sites use and loneliness: the mediating role of social support and self-esteem. *Current Psychology*, *41*(3), 1279-1286.

Lisitsa, E., Benjamin, K. S., Chun, S. K., Skalisky, J., Hammond, L. E., & Mezulis, A. H. (2020). Loneliness among young adults during COVID-19 pandemic: The mediational roles of social media use and social support seeking. *Journal of Social and Clinical Psychology*, *39*(8), 708-726.

Lodder, P. (2013). *To impute or not impute: That's the question. Advising on research methods: Selected topics*. Johannes van Kessel Publishing.

Mackson, S. B., Brochu, P. M., & Schneider, B. A. (2019). Instagram: Friend or foe? The application's association with psychological well-being. *New Media & Society*, 1461444819840021.

Malli, M. A., Ryan, S., Maddison, J., & Kharicha, K. (2023). Experiences and meaning of loneliness beyond age and group identity. *Sociology of Health & Illness*, *45*(1), 70-89.

Mann, F., Wang, J., Pearce, E., Ma, R., Schlief, M., Lloyd-Evans, B., ... & Johnson, S. (2022). Loneliness and the onset of new mental health problems in the general population. *Social psychiatry and psychiatric epidemiology*, *57*(11), 2161-2178.

Marquez, J., Goodfellow, C., Hardoon, D., Inchley, J., Leyland, A. H., Qualter, P., ... & Long, E. (2023). Loneliness in young people: a multilevel exploration of social ecological influences and geographic variation. *Journal of Public Health*, *45*(1), 109-117.

Martín-María, N., Caballero, F. F., Miret, M., Tyrovolas, S., Haro, J. M., Ayuso-Mateos, J. L., & Chatterji, S. (2020). Differential impact of transient and chronic loneliness on health status. A longitudinal study. *Psychology & Health*, *35*(2), 177-195.

Matook, S., Cummings, J., & Bala, H. (2015). Are you feeling lonely? The impact of relationship characteristics and online social network features on loneliness. *Journal of Management Information Systems*, *31*(4), 278-310.

Matthews, T., Danese, A., Caspi, A., Fisher, H. L., Goldman-Mellor, S., Kepa, A., ... & Arseneault, L. (2019). Lonely young adults in modern Britain: findings from an epidemiological cohort study. *Psychological medicine*, *49*(2), 268-277.

McCarty, C., Killworth, P. D., Bernard, H. R., Johnsen, E. C., & Shelley, G. A. (2001). Comparing two methods for estimating network size. *Human organization*, *60*(1), 28-39.

McIntyre, J. C., Worsley, J., Corcoran, R., Harrison Woods, P., & Bentall, R. P. (2018). Academic and non-academic predictors of student psychological distress: The role of social identity and loneliness. *Journal of Mental Health*, *27*(3), 230-239.

McKenna-Plumley, P. E., Turner, R. N., Yang, K., & Groarke, J. M. (2023). "It's a feeling of complete disconnection": experiences of existential loneliness from youth to older adulthood. *BMC psychology*, *11*(1), 408.

McKinlay, A. R., May, T., Dawes, J., Fancourt, D., & Burton, A. (2022). 'You're just there, alone in your room with your thoughts': a qualitative study about the psychosocial impact of the COVID-19 pandemic among young people living in the UK. *BMJ open*, *12*(2), Article e053676.

McNamara, N., Coyne, I., Ford, T., Paul, M., Singh, S., & McNicholas, F. (2017). Exploring social identity change during mental healthcare transition. *European Journal of Social Psychology*, *47*(7), 889-903.

McNamara, N., Mühlemann, N. S., Stevenson, C., Haslam, C., Hill, R., Steffens, N. K., & Bentley, S. (2021). "I was a firefighter": Preserving identities, meaning, and purpose in the retirement transition. https://osf.io/preprints/7f9ct/

McNamara, N., & Parsons, H. (2016). 'Everyone here wants everyone else to get better': The role of social identity in eating disorder recovery. *British Journal of Social Psychology*, *55*(4), 662-680.

McNamara, N., Stevenson, C., Costa, S., Bowe, M., Wakefield, J., Kellezi, B., ... & Mair, E. (2021). Community identification, social support, and loneliness: The benefits of social identification for personal well-being. *British Journal of Social Psychology*, *60*(4), 1379-1402.

McNamara, N., Wakefield, J. R., Mair, E., Rennoldson, M., Stevenson, C., & Fitzsimmons, W. (2024). Multiple group identifications and identity compatibility in eating disorder recovery: A mixed methods study. *Journal of Community & Applied Social Psychology*, *34*(1), Article e2720.

Meier, A., Ellison, N., Reinecke, L., & Valkenburg, P. M. (2024). Beyond Active-Passive: Towards the Next Stage of Social Media and Mental Health Research. *In Press.*

Mental Health Foundation. (2010). *The Lonely Society?* https://www.mentalhealth.org.uk/publications/the-lonely-society

Miller, K., Wakefield, J. R., & Sani, F. (2016). Greater number of group identifications is associated with healthier behaviour in adolescents. *British Journal of Developmental Psychology*, *34*(2), 291-305.

Mills, F., Drury, J., Symons, C., Weston, D., Amlôt, R., & Carter, H. (2024). Online support groups, social identity, and the health and wellbeing of adults with Long Covid: An interview study. *Journal of Community & Applied Social Psychology*, *34*(5), Article e2849.

Money, J., Nixon, S., Tracy, F., Hennessy, C., Ball, E., & Dinning, T. (2017). Undergraduate student expectations of university in the United Kingdom: What really matters to them? *Cogent Education*, *4*(1), 1301855.

Muldoon, O. T., Walsh, R. S., Curtain, M., Crawley, L., & Kinsella, E. L. (2019). Social cure and social curse: Social identity resources and adjustment to acquired brain injury. *European Journal of Social Psychology*, *49*(6), 1272-1282.

Munk, T., & Kennedy, M. (Eds.). (2024). *Victimisation in the Digital Age: An Online/Offline Continuum Approach*. Taylor & Francis.

Ng, N. W., Haslam, S. A., Haslam, C., & Cruwys, T. (2018). "How can you make friends if you don't know who you are?" A qualitative examination of international students' experience informed by the Social Identity Model of Identity Change. *Journal of Community & Applied Social Psychology*, *28*(3), 169-187.

Nguyen, M. H., Gruber, J., Fuchs, J., Marler, W., Hunsaker, A., & Hargittai, E. (2020). Changes in Digital Communication During the COVID-19 Global Pandemic: Implications for Digital Inequality and Future Research. *Social media + society*, *6*(3), Article 2056305120948255. https://doi.org/10.1177/2056305120948255

Nielsen, B. K., Nielsen, L. A., & Lasgaard, M. (2024). Loneliness in emerging adulthood: a qualitative study using cultural probes and in-depth interviews. *Current Research in Behavioral Sciences*, 100154. https://doi.org/10.1016/j.crbeha.2024.100154

Nowland, R., Necka, E. A., & Cacioppo, J. T. (2018). Loneliness and social internet use: pathways to reconnection in a digital world?. *Perspectives on psychological science*, *13*(1), 70-87.

Oakes, P. J., Turner, J. C., & Haslam, S. A. (1991). Perceiving people as group members: The role of fit in the salience of social categorizations. *British Journal of Social Psychology*, *30*(2), 125-144.

Ofcom. (2021). *Adults' Media Use and Attitudes report*. Adult's Media Use and Attitudes report 2020/21 (ofcom.org.uk)

Ofcom. (2024). *Adults' Media Use and Attitudes report 2024*. Adults' media use and attitudes 2024: interactive report - Ofcom

Office of National Statistics. (2018, December 5). *Children's and young people's experiences of loneliness: 2018.* https://www.ons.gov.uk/peoplepopulationandcommunity/wellbeing/articles/childrensandyoungpeoplesexperiencesofloneliness/2018

Office of National Statistics. (2020, December 21). *Coronavirus and the impact on students in higher education in England: September to December 2020.* Coronavirus and the impact on students in higher education in England: September to December 2020 - Office for National Statistics

Pallant, J. (2020) *SPSS survival manual: A step-by-step guide to data analysis using IMB SPSS* (7th ed.). Open University Press.

Park, C., Majeed, A., Gill, H., Tamura, J., Ho, R. C., Mansur, R. B., ... & McIntyre, R. S. (2020). The effect of loneliness on distinct health outcomes: a comprehensive review and meta-analysis. *Psychiatry Research*, *294*, 113514.

Park, S. (2018). FOMO, ephemerality, and online social interactions among young people. *East Asian Science, Technology and Society: An International Journal*, *12*(4), 439-458.

Pearce, E., Birken, M., Pais, S., Tamworth, M., Ng, Y., Wang, J., ... & Johnson, S. (2023). Associations between constructs related to social relationships and mental health conditions and symptoms: an umbrella review. *BMC psychiatry*, *23*(1), 652.

Pendry, L. F., & Salvatore, J. (2015). Individual and social benefits of online discussion forums. *Computers in Human Behavior*, *50*, 211-220.

Pennington, N. (2021). Communication outside of the home through social media during COVID-19. *Computers in human behavior reports*, *4*, 100118.

Peplau, L. A., & Perlman, D. (1979, June). Blueprint for a social psychological theory of loneliness. In *Love and attraction: An interpersonal conference* (pp. 101-110).

Peplau L. A., & Perlman, D. (1982). Perspectives on loneliness. In: Peplau L.A., Perlman D. (Eds.), *Loneliness: A sourcebook of current theory, research and therapy* (pp. 1–8). Wiley.

Perez, L. G., Siconolfi, D., Troxel, W. M., Tucker, J. S., Seelam, R., Rodriguez, A., ... & D'Amico, E. J. (2022). Loneliness and multiple health domains: Associations among emerging adults. *Journal of behavioral medicine*, *45*(2), 260-271.

Pew Research Centre. (2018, March 1). *Social Media Use in 2018.* PI_2018.03.01_Social-Media_FINAL.pdf (pewresearch.org)

Phu, B., & Gow, A. J. (2019). Facebook use and its association with subjective happiness and loneliness. *Computers in Human Behavior*, *92*, 151-159.

Pineda, C. N., Naz, M. P., Ortiz, A., Ouano, E. L., Padua, N. P., Pelayo, J. M., ... & Torres, G. C. S. (2022). Resilience, social support, loneliness and quality of life during COVID-19 pandemic: A structural equation model. *Nurse education in practice*, *64*, 103419.

Pitman, A., Mann, F., & Johnson, S. (2018). Advancing our understanding of loneliness and mental health problems in young people. *The Lancet Psychiatry*, *5*(12), 955-956.

Pittman, M., & Reich, B. (2016). Social media and loneliness: Why an Instagram picture may be worth more than a thousand Twitter words. *Computers in Human Behavior*, *62*, 155-167.

Postmes, T., Haslam, S. A., & Jans, L. (2013). A single-item measure of social identification: Reliability, validity, and utility. *British journal of social psychology*, *52*(4), 597-617.

Pownall, M., Harris, R., & Blundell-Birtill, P. (2022). Supporting students during the transition to university in COVID-19: Five key considerations and recommendations for educators. *Psychology Learning & Teaching*, *21*(1), 3-18.

Praharso, N. F., Tear, M. J., & Cruwys, T. (2017). Stressful life transitions and wellbeing: A comparison of the stress buffering hypothesis and the social identity model of identity change. *Psychiatry research*, *247*, 265-275.

Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior research methods, instruments, & computers*, *36*, 717-731.

Preece, J., Nonnecke, B., & Andrews, D. (2004). The top five reasons for lurking: improving community experiences for everyone. *Computers in human behavior*, *20*(2), 201-223.

Prochaska, J. J., Sung, H. Y., Max, W., Shi, Y., & Ong, M. (2012). Validity study of the K6 scale as a measure of moderate mental distress based on mental health treatment need and utilization. *International journal of methods in psychiatric research*, *21*(2), 88-97.

Przybylski, A. K., Murayama, K., DeHaan, C. R., & Gladwell, V. (2013). Motivational, emotional, and behavioral correlates of fear of missing out. *Computers in human behavior*, *29*(4), 1841-1848.

Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American community*. Simon and Schuster.

Raghavendra, P., Grace, E., Newman, L., Wood, D., & Connell, T. (2013). 'They think I'm really cool and nice': The impact of Internet support on the social networks and loneliness of young people with disabilities. *Telecommunications Journal of Australia, 63*(2). https://doi.org/10.25916/sut.26281366.v1

Reich, S. M., Subrahmanyam, K., & Espinoza, G. (2012). Friending, IMing, and hanging out face-to-face: overlap in adolescents' online and offline social networks. *Developmental psychology*, *48*(2), 356.

Reicher, S. D., Spears, R., & Postmes, T. (1995). A social identity model of deindividuation phenomena. *European review of social psychology*, *6*(1), 161-198.

Repo, J., Herkama, S., Yanagida, T., & Salmivalli, C. (2023). Transition to emerging adulthood during the COVID-19 pandemic: Changes in anxiety and the role of inclusion/exclusion experiences. *European Journal of Developmental Psychology*, *20*(4), 649-665.

Richardson, L., Long, E., Goodfellow, C., Milicev, J., & Gardani, M. (2024). Starting an undergraduate degree amid the COVID-19 pandemic: A mixed-method egocentric network study on student loneliness. *Plos one*, *19*(2), Article e0297953.

Richardson, T., Elliott, P., & Roberts, R. (2017). Relationship between loneliness and mental health in students. *Journal of public mental health*, *16*(2), 48-54.

Riordan, M. A., & Kreuz, R. J. (2010). Emotion encoding and interpretation in computer-mediated communication: Reasons for use. *Computers in human behavior*, *26*(6), 1667-1673.

Riordan, M. A., Kreuz, R. J., & Blair, A. N. (2018). The digital divide: Conveying subtlety in online communication. *Journal of Computers in Education*, *5*, 49-66.

Roberts, J. A., & David, M. E. (2020). The social media party: Fear of missing out (FoMO), social media intensity, connection, and well-being. *International Journal of Human–Computer Interaction*, *36*(4), 386-392.

Rubin, M. (2017). Do p values lose their meaning in exploratory analyses? It depends how you define the familywise error rate. *Review of General Psychology*, *21*(3), 269-275.

Russell, D., Cutrona, C. E., Rose, J., & Yurko, K. (1984). Social and emotional loneliness: an examination of Weiss's typology of loneliness. *Journal of personality and social psychology*, *46*(6), 1313.

Sampogna, G., Giallonardo, V., Del Vecchio, V., Luciano, M., Albert, U., Carmassi, C., ... & Fiorillo, A. (2021). Loneliness in young adults during the first wave of COVID-19 lockdown: results from the multicentric COMET study. *Frontiers in Psychiatry*, *12*, 788139.

Sani, F., Herrera, M., Wakefield, J. R., Boroch, O., & Gulyas, C. (2012). Comparing social contact and group identification as predictors of mental health. *British Journal of Social Psychology*, *51*(4), 781-790.

Sani, F., Madhok, V., Norbury, M., Dugard, P., & Wakefield, J. R. (2015a). Greater number of group identifications is associated with lower odds of being depressed: Evidence from a Scottish community sample. *Social psychiatry and psychiatric epidemiology*, *50*, 1389-1397.

Sani, F., Madhok, V., Norbury, M., Dugard, P., & Wakefield, J. R. (2015b). Greater number of group identifications is associated with healthier behaviour: Evidence from a Scottish community sample. *British Journal of Health Psychology*, *20*(3), 466-481.

Schoenebeck, S., Ellison, N. B., Blackwell, L., Bayer, J. B., & Falk, E. B. (2016). Playful backstalking and serious impression management: How young adults reflect on their past identities on Facebook. *Proceedings of the 19th ACM conference on computer-supported cooperative work & social computing* (pp. 1475-1487).

Schrock, A. R. (2016). Exploring the Relationship Between Mobile Facebook and Social Capital: What Is the "Mobile Difference" for Parents of Young Children? *Social Media + Society, 2*(3). https://doi.org/10.1177/2056305116662163

Seymour-Smith, M., Cruwys, T., Haslam, S. A., & Brodribb, W. (2017). Loss of group memberships predicts depression in postpartum mothers. *Social psychiatry and psychiatric epidemiology*, *52*, 201-210.

Shah, H. A., & Househ, M. (2023). Understanding loneliness in younger people: Review of the opportunities and challenges for loneliness interventions. *Interactive Journal of Medical Research*, *12*(1), e45197.

Sharma, L. R., Bidari, S., Bidari, D., Neupane, S., & Sapkota, R. (2023). Exploring the mixed methods research design: types, purposes, strengths, challenges, and criticisms. *Global Academic Journal of Linguistics and Literature*, *5*(1), 3-12.

Sheldon, K. M., Abad, N., & Hinsch, C. (2011). A two-process view of Facebook use and relatedness need-satisfaction: disconnection drives use, and connection rewards it. *Journal of personality and social psychology*, *100*(4), 766.

Singer, E. (2002). The use of incentives to reduce nonresponse in household surveys. *Survey nonresponse*, *51*(1), 163-177.

Singer, E., & Bossarte, R. M. (2006). Incentives for survey participation: when are they "coercive"?. *American journal of preventive medicine*, *31*(5), 411-418.

Skues, J. L., Williams, B., & Wise, L. (2012). The effects of personality traits, self-esteem, loneliness, and narcissism on Facebook use among university students. *Computers in Human Behavior*, *28*(6), 2414-2419.

Smith, D., Leonis, T., & Anandavalli, S. (2021). Belonging and loneliness in cyberspace: impacts of social media on adolescents' well-being. *Australian Journal of Psychology*, *73*(1), 12-23.

So, C., & Fiori, K. (2022). Attachment anxiety and loneliness during the first-year of college: Self-esteem and social support as mediators. *Personality and Individual Differences*, *187*, 111405.

Sommet, N., Weissman, D. L., Cheutin, N., & Elliot, A. J. (2023). How many participants do I need to test an interaction? Conducting an appropriate power analysis and achieving sufficient power to detect an interaction. *Advances in Methods and Practices in Psychological Science*, *6*(3), 25152459231178728.

Song, H., Zmyslinski-Seelig, A., Kim, J., Drent, A., Victor, A., Omori, K., & Allen, M. (2014). Does Facebook make you lonely?: A meta analysis. *Computers in Human Behavior*, *36*, 446-452.

Soós, M. J., Coulson, N. S., & Davies, E. B. (2022). Exploring social support in an online support community for tourette syndrome and tic disorders: analysis of postings. *Journal of medical Internet research*, *24*(10), Article e34403.

Sosik, V. S., & Bazarova, N. N. (2014). Relational maintenance on social network sites: How Facebook communication predicts relational escalation. *Computers in Human Behavior*, *35*, 124-131.

Steffens, N. K., Cruwys, T., Haslam, C., Jetten, J., & Haslam, S. A. (2016a). Social group membership in retirement are associated with reduced risk of premature death: evidence from a longitudinal cohort study. *BMJ open*, *6*(2), Article e010164.

Steffens, N. K., Jetten, J., Haslam, C., Cruwys, T., & Haslam, S. A. (2016b). Multiple social identities enhance health post-retirement because they are a basis for giving social support. *Frontiers in psychology*, *7*, 1519.

Stevenson, C., Wakefield, J. R., Felsner, I., Drury, J., & Costa, S. (2021). Collectively coping with coronavirus: Local community identification predicts giving support and lockdown adherence during the COVID-19 pandemic. *British Journal of Social Psychology*, *60*(4), 1403-1418.

Stolk, Y., Kaplan, I., & Szwarc, J. (2014). Clinical use of the Kessler psychological distress scales with culturally diverse groups. *International journal of methods in psychiatric research*, *23*(2), 161-183.

Streete, J. L. (2020). *Social identity transition: the role of social identity in eating disorder recovery*. [Doctoral dissertation, Nottingham Trent University]. [Social Identity Transition: The Role of Social Identity in Eating Disorder Recovery - ProQuest](#)

Stuart, A., Katz, D., Stevenson, C., Gooch, D., Harkin, L., Bennasar, M., ... & Nuseibeh, B. (2022). Loneliness in older people and COVID-19: applying the social identity approach to digital intervention design. *Computers in Human Behavior Reports*, *6*, 100179.

Sun, N., Rau, P. P. L., & Ma, L. (2014). Understanding lurkers in online communities: A literature review. *Computers in Human Behavior*, *38*, 110-117.

Sundqvist, A., & Hemberg, J. (2021). Adolescents' and young adults' experiences of loneliness and their thoughts about its alleviation. *International Journal of Adolescence and Youth*, *26*(1), 238-255.

Sundqvist, A. J. E., Hemberg, J., Nyman-Kurkiala, P., & Ness, O. (2024). Are educational transitions related to young people's loneliness and mental health: a systematic review. *International Journal of Adolescence and Youth*, *29*(1), 2373278.

Symeonides, R., & Childs, C. (2015). The personal experience of online learning: An interpretative phenomenological analysis. *Computers in Human Behavior*, *51*, 539-545.

Tajfel, H. (Ed.) (1982). *Social identity and intergroup relations.* Cambridge University Press.

Tajfel, H., & Billic, M. (1974). Familiarity and categorization in intergroup behavior. *Journal of experimental social psychology*, *10*(2), 159-170.

Tang, C., Thyer, L., Bye, R., Kenny, B., Tulliani, N., Peel, N., ... & Dark, L. (2023). Impact of online learning on sense of belonging among first year clinical health students during COVID-19: student and academic perspectives. *BMC Medical Education*, *23*(1), 100.

Thomas, L., Briggs, P., Hart, A., & Kerrigan, F. (2017). Understanding social media and identity work in young people transitioning to university. *Computers in Human Behavior*, *76*, 541-553.

Thomas, L., Orme, E., & Kerrigan, F. (2020). Student loneliness: The role of social media through life transitions. *Computers & Education*, *146*, 103754.

Thompson, M., Pawson, C., & Evans, B. (2021). Navigating entry into higher education: the transition to independent learning and living. *Journal of Further and Higher Education*, *45*(10), 1398-1410.

Towner, E., Tomova, L., Ladensack, D., Chu, K., & Callaghan, B. (2022). Virtual social interaction and loneliness among emerging adults amid the COVID-19 pandemic. *Current Research in Ecological and Social Psychology*, *3*, 100058.

Trepte, S., Dienlin, T., & Reinecke, L. (2013). Privacy, self-disclosure, social support, and social network site use. *University of Hohenheim*.

Truong, A. K., Keskin, G., & Lougheed, J. P. (2024). Within-and between-person associations between social interactions and loneliness: students' experiences during the COVID-19 pandemic. *Cognition and Emotion*, 1-9.

Turner, J. C., Brown, R. J., & Tajfel, H. (1979). Social comparison and group interest in ingroup favouritism. *European journal of social psychology*, *9*(2), 187-204.

Turner, J. C., Hogg, M. A., Oakes, P. J., Reicher, S. D., & Wetherell, M. S. (1987). *Rediscovering the social group: A self-categorization theory.* Basil Blackwell.

Twenge, J. M., & Campbell, W. K. (2019). Media use is linked to lower psychological well-being: Evidence from three datasets. *Psychiatric Quarterly*, *90*, 311-331.

Twenge, J. M., Spitzberg, B. H., & Campbell, W. K. (2019). Less in-person social interaction with peers among US adolescents in the 21st century and links to loneliness. *Journal of Social and Personal Relationships*, *36*(6), 1892-1913.

Uchino, B. N. (2009). Understanding the links between social support and physical health: A life-span perspective with emphasis on the separability of perceived and received support. *Perspectives on psychological science*, *4*(3), 236-255.

Valtorta, N. K., Kanaan, M., Gilbody, S., & Hanratty, B. (2016). Loneliness, social isolation and social relationships: what are we measuring? A novel framework for classifying and comparing tools. *BMJ open*, *6*(4), Article e010799.

van den Berg, Y. H., Burk, W. J., Cillessen, A. H., & Roelofs, K. (2021). Emerging adults' mental health during the COVID-19 pandemic: A prospective longitudinal study on the importance of social support. *Emerging Adulthood*, *9*(5), 618-630.

van Dick, R., Frenzel, S. B., Erkens, V. A., Häusser, J. A., Haslam, S. A., Mojzisch, A., ... & Junker, N. M. (2023). Reduced loneliness mediates the effects of multiple group identifications on well-being. *British Journal of Social Psychology*, *62*(4), 1693-1714.

van Roekel, E., Ha, T., Scholte, R. H., Engels, R. C., & Verhagen, M. (2016). Loneliness in the daily lives of young adults: Testing a socio–cognitive model. *European Journal of Personality*, *30*(1), 19-30.

Van Rooijen, L. (1986). Advanced students' adaptation to college. *Higher Education*, *15*(3), 197-209.

van Tilburg, T. G. (2021). Social, emotional, and existential loneliness: A test of the multidimensional concept. *The Gerontologist*, *61*(7), Article e335-e344.

van Tilburg, T. G., & de Jong Gierveld, J. (2023). The concepts and measurement of social isolation and loneliness. *Loneliness and Social Isolation in Old Age*, 1.

Van Zalk, M. H., Branje, S. J., Denissen, J., Van Aken, M. A., & Meeus, W. H. (2011). Who benefits from chatting, and why? The roles of extraversion and supportiveness in online chatting and emotional adjustment. *Personality and Social Psychology Bulletin*, *37*(9), 1202-1215.

Vasileiou, K., Barnett, J., Barreto, M., Vines, J., Atkinson, M., Long, K., ... & Wilson, M. (2019). Coping with loneliness at university: A qualitative interview study with students in the UK. *Mental Health & Prevention*, *13*, 21-30.

Verduyn, P., Ybarra, O., Résibois, M., Jonides, J., & Kross, E. (2017). Do social network sites enhance or undermine subjective well-being? A critical review. *Social Issues and Policy Review*, *11*(1), 274-302.

Verduyn, P., Gugushvili, N., & Kross, E. (2022). Do social networking sites influence well-being? The extended active-passive model. *Current Directions in Psychological Science*, *31*(1), 62-68.

Verity, L., Schellekens, T., Adam, T., Sillis, F., Majorano, M., Wigelsworth, M., ... & Maes, M. (2021). Tell me about loneliness: interviews with young people about what loneliness is and how to cope with it. *International journal of environmental research and public health*, *18*(22), 11904.

Victor, C. (2018). Interventions to combat loneliness for older adults: a review of reviews. *Innovation in Aging*, *2*(S1), 964.

Victor, C., Mansfield, L., Kay, T., Daykin, N., Lane, J., Duffy, L. G., ... & Meads, C. (2018). An overview of reviews: The effectiveness of interventions to address loneliness at all stages of the life-course. What Works Centre for Wellbeing. https://whatworkswellbeing.org/wp/wp-content/uploads/woocommerce_uploads/2018/10/Full-report-Tackling-loneliness-Oct-2018.pdf

Victor, C. R., & Yang, K. (2012). The prevalence of loneliness among adults: a case study of the United Kingdom. *The Journal of psychology*, *146*(1-2), 85-104.

Von Soest, T., Luhmann, M., & Gerstorf, D. (2020). The development of loneliness through adolescence and young adulthood: Its nature, correlates, and midlife outcomes. *Developmental psychology*, *56*(10), 1919.

Vriens, E., & van Ingen, E. (2018). Does the rise of the Internet bring erosion of strong ties? Analyses of social media use and changes in core discussion networks. *new media & society*, *20*(7), 2432-2449.

Vytniorgu, R., Cooper, F., Jones, C., Barreto, M & Jackson, M. (2021). *The Lonely Campus? An Exploration of Student Loneliness in UK Higher Education.* The Lonely Campus? An Exploration of Student Loneliness in UK Higher Education | BCIHub (bci-hub.org)

Vytniorgu, R. (2022, November). *Student belonging and the wider context.* Student-belonging-and-the-wider-context.pdf (hepi.ac.uk)

Wakefield, J. R., Bowe, M., Kellezi, B., Butcher, A., & Groeger, J. A. (2020). Longitudinal associations between family identification, loneliness, depression, and sleep quality. *British Journal of Health Psychology*, *25*(1), 1-16.

Wakefield, J. R. H., Sani, F., Madhok, V., Norbury, M., Dugard, P., Gabbanelli, C., ... & Poggesi, F. (2017). The relationship between group identification and satisfaction with life in a cross-cultural community sample. *Journal of happiness studies*, *18*, 785-807.

Wang, J., Lloyd-Evans, B., Giacco, D., Forsyth, R., Nebo, C., Mann, F., & Johnson, S. (2017). Social isolation in mental health: a conceptual and methodological review. *Social psychiatry and psychiatric epidemiology*, *52*, 1451-1461.

Weiss, R. (1974). The provision of social relationships. In Z. Rubin (Ed.), *Doing unto others: Joining, molding, conforming, helping, loving* (pp.17-26). Prentice-Hall.

Weiss, R. (1975). *Loneliness: The experience of emotional and social isolation*. MIT press.

White, Craig. 2021. "The Role of Group Membership and Social Identity Leadership on the Resilience of Royal Air Force Personnel". [Doctoral dissertation, Loughborough University]. https://doi.org/10.26174/thesis.lboro.16565856.v1

Wilcox, P., Winn, S., & Fyvie-Gauld, M. (2005). 'It was nothing to do with the university, it was just the people': the role of social support in the first-year experience of higher education. *Studies in higher education*, *30*(6), 707-722.

Williams, A. J., Nielsen, E., & Coulson, N. S. (2020). "They aren't all like that": Perceptions of clinical services, as told by self-harm online communities. *Journal of Health Psychology*, *25*(13-14), 2164-2177.

Wright, S. L., & Silard, A. G. (2022). Loneliness in young adult workers. *International Journal of Environmental Research and Public Health*, *19*(21), 14462.

Yang, C. C., & Brown, B. B. (2013). Motives for using Facebook, patterns of Facebook activities, and late adolescents' social adjustment to college. *Journal of youth and adolescence*, *42*, 403-416.

Yavich, R., Davidovitch, N., & Frenkel, Z. (2019). Social Media and Loneliness--Forever Connected?. *Higher Education Studies*, *9*(2), 10-21.

Zhang, X., & Dong, S. (2022). The relationships between social support and loneliness: a meta-analysis and review. *Acta Psychologica*, *227*, 103616.

Zheng, K., Johnson, S., Jarvis, R., Victor, C., Barreto, M., Qualter, P., & Pitman, A. (2023). The experience of loneliness among international students participating in the BBC Loneliness Experiment: Thematic analysis of qualitative survey data. *Current Research in Behavioral Sciences*, *4*, 100113.

Zhong, B. L., Chen, S. L., & Conwell, Y. (2016). Effects of transient versus chronic loneliness on cognitive function in older adults: Findings from the Chinese Longitudinal Healthy Longevity Survey. *The American Journal of Geriatric Psychiatry*, *24*(5), 389-398.

Appendix I: Study 1 Participant Information Sheet

Information for Participants

I am a PhD student from the Department of Psychology at Nottingham Trent University. The team supervising this work includes Dr Niamh McNamara (Director of Studies), Dr Lucy Betts and Dr Sarah Buglass. The research explores identification with online groups, and the association this may have with health and wellbeing.

We would like to invite you to take part in a survey study. The survey study will be looking at your feelings of connectedness to online groups and your health and wellbeing. It will take approximately 20 minutes to complete. From the responses to the survey, we will be looking at your engagement with online groups, how connected you feel you are to your online network and how these are linked to your health and wellbeing.

Before you decide whether you would like to take part, it is important that you understand why the research is being done and what taking part will include. Please read the following information carefully.

Who can take part?

Participants will be aged 18-24 and be a member of at least one online group. An online group may be defined as three or more individuals, communicating mainly online, through mediums such as instant messaging, forums or video chats. An online group may consist of family, friends, a work team, sports club, community group, etc. You do not have to interact with these groups solely online, for example a family group chat or an online support group that also interacts offline. However, for the purposes of this study, I will only be considering online interactions.

What do I have to do if I wish to participate?

If you wish to participate, please complete the following consent form, agreeing to all of the statements by selecting each one and clicking 'continue'.

You will then be able to complete the survey. If you do not wish to answer a question for whatever reason, please continue with the rest of the survey.

In order to compensate you for your time, we would like to offer participants a chance to take part in a prize draw for the chance to win one of five prizes of £20 Amazon vouchers.

If you are a psychology student of Nottingham Trent University, through participating in this study you will receive 2 credits through the SONA system.

This does not negate your right to withdraw at any point, with no impact on the credits or vouchers received.

Will my details be kept confidential?

Yes. The researchers have a strict policy to ensure your data are kept confidential. You will create a unique identification number if you wish to take part. Your data will be identified by this unique identification number. At the beginning of the survey, how to create the unique identification number will be explained.

All of your data will be kept secure in line with the General Data Protection Regulation 2016.

Do I have to take part?

No. Participation in the study is completely voluntary.

What do I do if I no longer wish to participate in this study?

If you wish to withdraw from the study, you have the right to do so at any point in the research without providing any explanation. If you were to withdraw before 01/10/21, your data would not be used at all. If you were to withdraw after this date, your data would be used in the initial analysis but not in any subsequent publications.

To withdraw, please contact one of the research team (details below) and quote your unique identification number, stating that you wish to withdraw from the study. By emailing the unique identification number to the researcher, your right to anonymity will be waived but this will not impact on your confidentiality. If preferred, the postal address of the researcher and the postal address and telephone number of the director of studies have been provided to address the issue outlined above.

What happens after I have participated in this study?

The researcher will collate and analyse the information, looking for links between online group membership and health. This may be published in scientific journals. All results presented in any academic publications will be reported as the entire group, therefore you will remain anonymous.

Given the nature of the programme – in which we explore questions of social connectivity – there is the potential for a small amount of emotional discomfort. If you feel your participation has raised any issues for you that you would like to discuss further, please contact The Mix for information and advice on 0808 808 4994 between the hours of 4pm to 11pm or visit https://www.themix.org.uk/

If you have any questions after taking part in this research, feel free to contact the researcher or the Director of Studies:

Elizabeth Mair (PhD researcher): elizabeth.mair2018@my.ntu.ac.uk

PhD researcher

Department of Psychology

Nottingham Trent University

Chaucer Building

50 Shakespeare Street

Nottingham

NG1 4FQ

Dr Niamh McNamara (Director of Studies): niamh.mcnamara@ntu.ac.uk

Department of Psychology

Nottingham Trent University

Chaucer Building

50 Shakespeare Street

Nottingham

NG1 4FQ

Appendix II: Study 1 Consent Form

Please consent to the following statements by selecting each statement and clicking 'continue'.

I have read the participant information sheet and give my informed consent to take part in the study.	
I have been given the opportunity to ask questions.	
I confirm that I am aged 18 or over.	
I have been told I can withdraw my information from the study at any point without giving any reasons. If I withdraw after 01/10/21, my data will be used in the initial analysis but not in any subsequent publications.	
I understand that a record of me taking part will be kept and all data collected from my participation will only be identified by a number.	
I have been told there are no known expected discomforts or risks involved in taking part.	
I have been told that there is no unnecessary deception in this study.	
I give my consent that the results of my survey will be published.	

Many thanks for participating in the study. We appreciate your contribution to our work hugely.

Elizabeth Mair   Dr Niamh McNamara

PhD researcher   Director of Studies

Department of Psychology   Department of Psychology

Nottingham Trent University

50 Shakespeare Street

Nottingham

NG1 4FQ

Nottingham Trent University

50 Shakespeare Street

Nottingham

NG1 4FQ

Appendix III: Study 1 Debrief

Thank you for participating in the survey. Please be reminded that all data is treated in a completely confidential manner, which means that only the research team will have access to the information.

Given the nature of the programme – in which we explore questions of social connectivity – there is the potential for a small amount of emotional discomfort. If you feel your participation has raised any issues for you that you would like to discuss further, please contact The Mix for information and advice on 0808 808 4994 between the hours of 4pm to 11pm or visit https://www.themix.org.uk/

If you would like information about safer use of the internet, please visit https://www.connectsafely.org/safetytips/

If you have any further questions about the study or decide that you would like to have your data withdrawn from the study (if withdrawn after 01/10/21, your data will be used in the initial analysis but not in any subsequent publications and this will not affect your entry into the prize draw or SONA credits), please contact:

Elizabeth Mair

PhD researcher

Department of Psychology

School of Social Sciences

50 Shakespeare Street

Nottingham Trent University

Nottingham

NG1 4FQ

e-mail: elizabeth.mair2018@my.ntu.ac.uk

or

Dr. Niamh McNamara (Director of Studies)

Department of Psychology

School of Social Sciences

50 Shakespeare Street

Nottingham Trent University

Nottingham

NG1 4FQ

Tel: 0115 848 4346

e-mail: niamh.mcnamara@ntu.ac.uk

If you would like to be entered into the prize draw for the chance to win one of five £20 Amazon vouchers, please provide a contact email address below and click on the 'next' arrow to submit: _____

If you would like to receive SONA credits, please contact me on elizabeth.mair2018@my.ntu.ac.uk

Appendix IV: Study 1 Recruitment Permission Message

Dear [insert contact name],

My name is Elizabeth Mair and I am a PhD student from the Department of Psychology at Nottingham Trent University. I am currently conducting an online survey as part of the PhD which explores identification with online groups, and the association this may have with health and wellbeing.

I am contacting you to ask if it would be possible for me to post information about the online survey within the group?

I am hoping to recruit people aged 18-24, who are members of at least one online group. The survey looks at feelings of connectedness with online groups, health and well-being. It would take approximately 20 minutes to complete.

In order to compensate participants for their time, we would like to offer participants a chance to take part in a prize draw for the chance to win one of five prizes of £20 Amazon vouchers. Alternatively, if they are a psychology student of Nottingham Trent University, through participating in this study they can either be entered into the prize draw or receive 2 credits through the SONA system. This would not negate their right to withdraw at any point, with no impact on the credits or vouchers received.

Please see below for the participant information sheet to provide you with further information, or please feel free to contact me with any questions.

The team supervising this work includes Dr Niamh McNamara (Director of Studies), Dr Lucy Betts and Dr Sarah Buglass.

Thank you for your consideration, I would really appreciate your help.

Kind regards,

Elizabeth Mair

[Participant information sheet (Appendix I) would be included here]

Appendix V: Study 2 Participant Information Sheet

Information for Participants

I am a PhD student from the Department of Psychology at Nottingham Trent University. The team supervising this work includes Dr Sarah Buglass (Director of Studies), Dr Lucy Betts and Dr Niamh McNamara. The research explores identification with social groups, starting university, and the association this may have with health and wellbeing.

We would like to invite you to take part in a longitudinal survey study. The survey study will be looking at your experience of starting university, your feelings of connectedness to online and offline groups and your health and wellbeing, at two time points. It will take approximately 20 minutes to complete. From the responses to the survey, we will be looking at your engagement with online and offline groups, your adjustment to university and how these are linked to your health and wellbeing.

Before you decide whether you would like to take part, it is important that you understand why the research is being done and what taking part will include. Please read the following information carefully.

Who can take part?

Participants will be aged 18-24 and will have recently started their first year of undergraduate study at any UK University.

What do I have to do if I wish to participate?

If you wish to participate, please complete the following consent form, agreeing to all of the statements by selecting each one and clicking 'continue'. You will also be asked to provide an email address to allow us to contact you for the follow-up survey in six months' time.

You will then be able to complete the survey. If you do not wish to answer a question for whatever reason, please continue with the rest of the survey.

In order to compensate you for your time for the first study, we would like to offer participants a chance to take part in a prize draw for the chance to win one of ten prizes of £15 Amazon vouchers.

If you are a psychology student of Nottingham Trent University, through participating in this study you can choose to either be entered into the prize draw outlined above **or** receive 2 credits through the SONA system.

You will be contacted in 6 months (March/April) and asked to complete a similar survey.

If you were to participate in the follow-up study, you will have the opportunity to be entered into a second prize draw for the chance to win one of ten prizes of £15 Amazon vouchers. If you are a psychology student of Nottingham Trent University, through participating in the follow-up study, you can either choose to be entered into the prize draw **or** receive 2 credits through the SONA system. Participating psychology students of NTU can choose either option however participants cannot receive both SONA credits and entry into the prize draw, in line with the SONA policy.

If you choose to be entered into the prize draw, we will ask you to enter your email address to allow us to contact you if you win one of the vouchers. Email addresses will be kept separately from the dataset and will be deleted upon completion of data collection.

This does not negate your right to withdraw at any point, with no impact on the credits or vouchers received.

Will my details be kept confidential?

Yes. The researchers have a strict policy to ensure your data are kept confidential. You will create a unique identification number if you wish to take part. Your data will be identified by this unique identification number. At the beginning of the survey, how to create the unique identification number will be explained.

All of your data will be kept secure in line with the General Data Protection Regulation 2016.

Do I have to take part?

No. Participation in the study is completely voluntary.

What do I do if I no longer wish to participate in this study?

If you wish to withdraw from the study, you have the right to do so at any point in the research without providing any explanation. You can withdraw at any point during the survey and up to two weeks after taking part in the survey.

To withdraw, please contact one of the research team (details below) and quote your unique identification number, stating that you wish to withdraw from the study. By emailing the unique identification number to the researcher, your right to anonymity will be waived but this will not impact on your confidentiality. If preferred, the postal address of the researcher and the postal address and telephone number of the director of studies have been provided to address the issue outlined above.

What happens after I have participated in this study?

The researcher will collate and analyse the information, looking for links between multiple group membership and health. This may be published in scientific journals. All results presented in any academic publications will be reported as the entire group, therefore you will remain anonymous.

Given the nature of the programme – in which we explore questions of social connectivity – there is the potential for a small amount of emotional discomfort. If you feel your participation has raised any issues for you that you would like to discuss further, please contact The Mix for information and advice on 0808 808 4994 between the hours of 4pm to 11pm or visit https://www.themix.org.uk/

If you have any questions after taking part in this research, feel free to contact the researcher or the Director of Studies:

Elizabeth Mair (PhD researcher): elizabeth.mair2018@my.ntu.ac.uk

PhD researcher

Department of Psychology

Nottingham Trent University

Chaucer Building

50 Shakespeare Street

Nottingham

NG1 4FQ

Dr Sarah Buglass (Director of Studies): sarah.buglass@ntu.ac.uk

Department of Psychology

Nottingham Trent University

Chaucer Building

50 Shakespeare Street

Nottingham

NG1 4FQ

Appendix VI: Study 2 Consent Form

Please consent to the following statements by selecting each statement and clicking 'continue'.

I have read the participant information sheet and give my informed consent to take part in the study.	
I confirm that I am aged 18 or over.	
I understand that a record of me taking part will be kept and all data collected from my participation will only be identified by a number.	
I have been told I can withdraw my information from the study at any point during the survey and up to two weeks after taking part without giving any reasons.	
I have been told there are no known expected discomforts or risks involved in taking part.	
I have been told that there is no unnecessary deception in this study.	
I give my consent that the results of my survey will be published.	
I give permission to be contacted for the second survey in 6 months time.	

Please provide an email address to help us contact you in 6 months time for the follow-up survey. This email address will only be used to contact you for the second survey and will not be shared.

Email_____

Many thanks for participating in the study. We appreciate your contribution to our work hugely.

Elizabeth Mair

PhD researcher

Department of Psychology

Nottingham Trent University

50 Shakespeare Street

Nottingham

NG1 4FQ

Dr Sarah Buglass

Director of Studies

Department of Psychology

Nottingham Trent University

50 Shakespeare Street

Nottingham

NG1 4FQ

Appendix VII: Study 2 Debrief

Thank you for participating in the survey. Please be reminded that all data is treated in a completely confidential manner, which means that only the research team will have access to the information.

Given the nature of the programme – in which we explore questions of social connectivity – there is the potential for a small amount of emotional discomfort. If you feel your participation has raised any issues for you that you would like to discuss further, please contact The Mix for information and advice on 0808 808 4994 between the hours of 4pm to 11pm or visit https://www.themix.org.uk/

If you would like information about safer use of the internet, please visit https://www.connectsafely.org/safetytips/

You will receive an email inviting you to participate in the follow-up survey in 6 months time. Your participation is greatly appreciated.

If you have any further questions about the study or decide that you would like to have your data withdrawn from the study (you can withdraw up to two weeks after taking part, this will not affect your entry into the prize draw or SONA credits), please contact:

Elizabeth Mair

PhD researcher

Department of Psychology

School of Social Sciences

50 Shakespeare Street

Nottingham Trent University

Nottingham

NG1 4FQ

e-mail: elizabeth.mair2018@my.ntu.ac.uk

or

Dr. Sarah Buglass (Director of Studies)

Department of Psychology

School of Social Sciences

50 Shakespeare Street

Nottingham Trent University

Nottingham

NG1 4FQ

Tel: 0115 848 4719

e-mail: sarah.buglass@ntu.ac.uk

If you would like to be entered into the prize draw for the chance to win one of ten £15 Amazon vouchers, please provide a contact email address below and click on the 'next' arrow to submit:

If you would like to receive SONA credits, please contact me on elizabeth.mair2018@my.ntu.ac.uk

Would you be interested in taking part in an interview study exploring your experiences of starting university and your use of online and offline group? The interview would be conducted online and would last approximately 1 hour. To receive more information, please select yes and enter your email address:

Yes (please enter email address)

No

Appendix VIII: Study 3 recruitment emails

Follow-up email for those who took part in the previous survey (these participants will have already read the participant information sheet and consented to the interview)

Hello,

Thank you for taking part in the survey entitled "A survey exploring starting university, social groups, and well-being". We really appreciate you taking part in this research.

During this survey, you shared your email address and consented to be contacted for the interview.

The interview will explore your experience of starting university, and your online and offline social groups, looking at your feelings of connectedness. It will take approximately 1 hour 30 minutes to complete. The interview will be carried out using Microsoft Teams and will involve an exercise of mapping your social groups and questions relating to these groups.

By participating in the online interview, you will be able to receive either 9 SONA credits or will receive a £15 Amazon voucher.

Please reply to this email to arrange a suitable date and time for the interview.

Thank you for considering taking part in this research. If you have any questions, please feel free to get in touch.

Best wishes,

Elizabeth Mair (PhD researcher): elizabeth.mair2018@my.ntu.ac.uk

PhD researcher

Department of Psychology

Nottingham Trent University

Chaucer Building

50 Shakespeare Street

Nottingham

NG1 4FQ

Email for those who were recruited through other methods

Hello,

Thank you for expressing interest in taking part in an interview exploring your experience of starting university, and your online and offline social groups, looking at your feelings of connectedness.

It will take approximately 1 hour 30 minutes to complete. The interview will be carried out using Microsoft Teams and will involve an exercise of mapping your social groups and questions relating to these groups.

Please follow the link to read the participant information sheet. *Link to be inserted here, this will take participants to the participant information sheet and consent form.*

Please reply to this email to arrange a suitable date and time for the interview.

By participating in the online interview, you will be able to receive either 9 SONA credits or will receive £15 Amazon voucher.

Thank you for considering taking part in this research. If you have any questions, please feel free to get in touch.

Best wishes,

Elizabeth Mair (PhD researcher): elizabeth.mair2018@my.ntu.ac.uk

PhD researcher

Department of Psychology

Nottingham Trent University

Chaucer Building

50 Shakespeare Street

Nottingham

NG1 4FQ

Appendix IX: Study 3 Participant information sheet

Information for Participants

We would like to invite you to take part in an online interview study exploring your experiences of starting university, and your online and offline social groups, looking at your feelings of connectedness and how these groups supported your transition to university. Within the interview, we will map out your online and offline social groups and talk about your group memberships. It will take approximately 1 hour to complete.

What do I have to do if I wish to participate?

If you wish to participate, please select the 'yes, I would like to participate' option below and enter your email address.

We will then contact you by email to arrange a date and time for the interview, which will be held over Microsoft Teams on an online call (either with video or without). You do not need a Teams account for this and can call in as a guest. You do not have to answer any question you do not wish to, for whatever reason. If you agree, the interview will be recorded to ensure accuracy of data collection. Please consider an appropriate location for the interview e.g. somewhere you feel comfortable discussing your social groups, and consider the background/blurring your background if you wish to. I will ensure a secure environment on my end during the call, in that your responses will not be overheard.

In order to compensate you for your time for the study, we would like to offer participants £10 in Amazon vouchers.

Alternatively, if you are a psychology student of Nottingham Trent University, through participating in this study you can choose to either have a £15 voucher or receive 6 credits through the SONA system. Participating psychology students of NTU can choose either option however participants cannot receive both SONA credits and a voucher, in line with the SONA policy.

This does not negate your right to withdraw at any point, with no impact on the credits or vouchers received.

How will you protect my privacy?

Due to the nature of the research, extracts from the interview will be used in the PhD thesis and/or in publications which does break confidentiality however, data will only be provided in a form that does not identify you. To protect your anonymity, all names will be changed. Only the research team will have access to the recordings. Images of the maps you create will also be included in the thesis and/or in publications, however, the names of the groups will be changed to protect your anonymity.

Confidentiality would be broken if participants reveal any information that makes the researcher concerned that there was a risk of serious harm to themselves or other people.

All of your data will be kept secure in line with the General Data Protection Regulation 2016. It will not be kept in a form which would identify you for longer than necessary to process it, it will be processed in a lawful, transparent manner, not kept longer than necessary, and will ensure the security of the data.

Do I have to take part?

No. Participation in the study is completely voluntary.

What do I do if I no longer wish to participate in this study?

If you wish to withdraw from the study, you have the right to do so at any point in the research and up to two weeks after participating, without providing any explanation. There will be no impact on the SONA credits or vouchers received if you decide to withdraw.

To withdraw, please contact one of the research team (details below) and quote your unique identification number, stating that you wish to withdraw from the study. By emailing the unique identification number to the researcher, your right to anonymity will be waived but this will not impact on your confidentiality. If preferred, the postal address of the researcher and the postal address and telephone number of the director of studies have been provided to address the issue outlined above.

If you withdraw after the two-week period following the interview, your data may still be used in reports/ publications if analysis has already occurred. However, it will be removed from the central dataset so that it will not be included in any subsequent analysis.

What happens after I have participated in this study?

The researcher will collate and analyse the information, looking for links between multiple group membership and health, and exploring the experiences of young people using online groups. This may be published in scientific journals. All results presented in any academic publications, conference talks, and the PhD thesis will be reported as the entire group, therefore you will remain anonymous.

Given the nature of the programme – in which we explore questions of social connectivity – there is the potential for a small amount of emotional discomfort. If you feel your participation has raised any issues for you that you would like to discuss further, please contact The Mix for information and advice on 0808 808 4994 between the hours of 4pm to 11pm or visit https://www.themix.org.uk/

If you have any questions after taking part in this research, feel free to contact the researcher or the Director of Studies:

Elizabeth Mair (PhD researcher): elizabeth.mair2018@my.ntu.ac.uk

PhD researcher

Department of Psychology

Nottingham Trent University

Chaucer Building

50 Shakespeare Street

Nottingham

NG1 4FQ

Dr Sarah Buglass (Director of Studies) sarah.buglass@ntu.ac.uk

Department of Psychology

Nottingham Trent University

Chaucer Building

50 Shakespeare Street

Nottingham

NG1 4FQ

Appendix X: Study 3 Informed Consent for online interview

Please consent to the following statements by selecting each statement and clicking 'continue'.

I have read the participant information sheet and give my informed consent to take part in the study.	
I confirm that I am aged 18 or over.	
I understand that a record of me taking part will be kept and all data collected from my participation will only be identified by a number.	
I have been told I can withdraw my information from the study at any point during the interview and up to two weeks after taking part without giving any reasons.	
I have been told there are no known expected discomforts or risks involved in taking part.	
I understand that, due to the nature of the research, extracts from the interview will be used in the PhD thesis and/or in publications. However, data will only be provided in a form that does not identify you. To protect your anonymity, all names will be changed. Only the research team will have access to the recordings.	

Yes, I would like to participate, please contact me using the following email address to arrange the interview: (enter email here)

Many thanks for participating in the study. We appreciate your contribution to our work hugely.

Elizabeth Mair   Dr Sarah Buglass

PhD researcher   Director of Studies

Department of Psychology   Department of Psychology

Nottingham Trent University   Nottingham Trent University

50 Shakespeare Street   50 Shakespeare Street

Nottingham

NG1 4FQ

Appendix XI: Study 3 Debrief Sheet for online interview

Thank you for taking part in our study. Your participation is greatly appreciated.

Please be reminded that all data is treated in a completely confidential manner, which means that only the research team will have access to the information.

Given the nature of the study – in which we explore questions of social connectivity – there is the potential for a small amount of emotional discomfort. If you feel your participation has raised any issues for you that you would like to discuss further, please contact The Mix for information and advice on 0808 808 4994 between the hours of 4pm to 11pm or visit https://www.themix.org.uk/

If you would like information about safer use of the internet, please visit https://www.connectsafely.org/safetytips/

If you have any further questions about the study or decide that you would like to have your data withdrawn from the study (you can withdraw up to two weeks after taking part, this will not affect your entry into the prize draw or SONA credits), please contact:

Elizabeth Mair

PhD researcher

Department of Psychology

School of Social Sciences

50 Shakespeare Street

Nottingham Trent University

Nottingham

NG1 4FQ

e-mail: elizabeth.mair2018@my.ntu.ac.uk

or

Dr. Sarah Buglass (Director of Studies)

Department of Psychology

School of Social Sciences

50 Shakespeare Street

Nottingham Trent University

Nottingham

NG1 4FQ

Tel: 0115 848 4719

e-mail: sarah.buglass@ntu.ac.uk

Appendix XII: Study 3 Interview schedule

Verbal consent confirmed, consent form signed in Qualtrics form prior to interview

Thank you for agreeing to be interviewed today.

This study explores your experiences starting university and the social groups you belong to. I would like to talk to you today about your experiences of any online and offline groups you might belong to, what similarities/differences there are between your online and offline groups, and what effect the pandemic has had on your experiences within these groups and connecting with others. We will also map out your social groups using a mapping tool.

The interview will be both audio and video recorded through Teams, so that during the interview I can listen to you without taking too many notes and then following this, I can re-listen to everything for clarity. I will delete the recording after the interviews have been written up and the transcripts have been checked for accuracy.

Do you have any questions before we start?

I would like to talk to you about your experiences of your online and offline groups and what effect the pandemic has had on your experiences within these groups and connecting with others as you have made the transition to university. An online group may consist of family, friends, a work team, sports club, community group, etc. An online group may be defined as three or more individuals, communicating **mainly online**, through mediums such as instant messaging, forums or video chats. You do not have to interact with these groups solely online, for example a family group chat or an online support group that also interacts offline. An offline groups could take any form – for example, they could be broad opinion-based or demographic groups; leisure or social groups; community groups; sporting groups; work groups; professional groups; family or friendship groups; or any others you can think of. You do not have to interact with these groups solely offline and we are conscious of the impact Coronavirus may have had on the ability to interact with groups offline.

If we start off with talking about university, please can you tell me about your experience of starting university?

Please can you tell me about your experience of using online and offline groups during this period?

How did you use online (and offline) groups during this time?

What platform do you use to communicate with these (online) groups?

Can you tell me about any new groups you joined?

Why did you join these groups?

How did you stay in touch with family or friends during this time?

How did you maintain your existing group memberships during this time?

How did the groups make you feel during this time of transition?

What role do you think they played?

Can you say why this was the case?

Earlier, you responded *their score from the Postmes et al. (2013) identification scale in the survey will be used as a prompt here* when asked whether you identify as a student, please can you tell me a bit more about this?

If you could offer one piece of advice about starting university, what advice would you give to others in that situation? *Is there anything you'd do differently?*

If we now move on to do a short activity of mapping your social groups. Please follow the link I've shared in the chat, it will take you to the programme used for the mapping. There will be some instructions on screen which will provide an overview of the mapping task and I talk through some examples.

Identifying your groups: Please think about all the groups you belong to. To start the process of social identity mapping, type out the names of each of these groups onto the separate circles on the screen.

Remember the size of the circle matters, so type the name of each very important group on the large circle, type the names of each moderately important group on the medium sized circle, and type the name of each less important group on separate small circle.

Next, please can you colour code the circles, by clicking on the icon, with blue for online groups and orange for offline groups. If you feel unable to classify the group, please colour it green

For each group participants list, the following questions will be asked:

Thinking about your groups:

How typical (or representative) are you of your social groups? For each group indicate how typical you are of the group and the people in it. Put this rating in the top left corner of each circle on the screen. Using a scale from 1-10 where 1 indicates you are not at all typical of the group and 10 indicates you are very typical.

How often in a month do you engage with each group? If it's everyday, the number would be 30, if its every week, then the number would be 4. (0-30 day scale)

How much support do you get from each group? For example, you could belong to a work-related group or a family related group that provides you with a lot of practical or emotional support, so the rating you give for that group would be high, for instance 8 or 9 (no support at all 1 – a very high level of support 10)

How positive do you feel about being a member of each group? (not positive at all 1 – very positive 10)

And if you scroll down further, there's another question…

What percentage of your activities with this group are online, versus face-to-face? (0-100%)

Mapping your groups in relation to each other:

How different are your groups from each other? We know that some groups are very similar to each other because they like or do similar things, but others are very different from each other. (To depict group similarity, please move the groups that are similar to each other, closer together, and move the groups that are not, further apart)

How easy or difficult is it to be a member of your groups at the same time? Because we typically belong to a number of groups, it can be hard at times to juggle them. In your map, we would like you to use the different colour lines to show how easy or hard it is to be a part of different groups at the same time. For example, if you belong to a chess club, it might be very easy to also be a member of a family group but not that easy to also be a member of a sports club. (Group compatibility, for example, whether it is easy or difficult to be a part of these groups, is indicated with different lines. For example, a very incompatible group would be indicated with a red line)

As participants go through their map, questions will be asked to provide further context, e.g. why is this group important? If possible, is there anything you would change about your map? Why do you feel those groups are compatible?

Thank you for talking through your groups with me.

If we move on to talking about groups in general, thinking about all your groups, if you were to choose one, which would be the most important and why?

How would you describe the function of this group?

What are the key characteristics of this group? *Is this a group you interact with online/offline/both?*

If you were to describe the members of this group, what are their characteristics?

How does this group make you feel?

What would you say you get from belonging to this group?

If the chosen group is online - What would you say are the benefits of belonging to the group in the online context? What does it offer?

How would you feel if you were no longer able to be a part of that group in an online context?

Can you tell me about any aspects of the group that make you or others uncomfortable?

We've spoken a lot about the group, if we take a step back, how would you say your online and offline groups complement each other? How do they interact with each other?

Thinking about your groups, both online and offline, what are your experiences of interacting with these groups?

How do you feel your online and offline groups connect?

To what extent do your group memberships meet your needs?

Thinking about all your groups, if you were to change one aspect of them, what would it be?

Thinking about your experiences over the pandemic,

Can you tell me about your experiences of staying connected to your groups during the pandemic? (What changed? How did you find this? Is there anything you liked or disliked about this?)

How has COVID-19 affected your social connectedness/group memberships/relationships?

Is there anything you think we should know or understand better about your experiences during this time?

Is there anything else you think I should know or would like to talk about?

"Neutral prompts":

Can you tell me some more about this?

Can you give me an example of…?

Would you mind explaining this a bit further?

Repeating what was said

Did I get this right? Is that what you meant?

What and How questions

Appendix XII: Study 3 Participant demographics

Pseudonym	Gender	Age	Ethnicity	Moved from home?	Living arrangements	UK or international student?
Amelia	Female	20	British	Yes	Shared student housing - off campus	UK
Rowan	Female	20	White	Yes	Shared student housing - off campus	International
Diana	Female	19	Romanian	Yes	Other (living with partner on campus)	UK
Jaya	Female	19	British Indian	No	Living with family	UK
Ally	Female	20	White British	Yes	Shared student housing - off campus	UK
Marilena	Female	21	Croatian	Yes	Shared student housing - off campus	International
Isabelle	Female	21	White British	Yes	Living with friends	UK
Nick	Male	19	White British	Yes	Shared student housing - off campus	UK
Emma	Female	20	White	Yes	Living with friends	UK
Ivy	Female	21	White	Yes	Living with friends	UK

Willow	Female	21	White British	Yes	Shared student housing - off campus	UK
Rosalyn	Prefer not to say	22	Asian	Yes	Living alone	International
Lottie	Female	21	White British	No	Living with family	UK
Violet	Female	20	Black British	Yes	Living with friends	UK
James	Male	20	White British	Yes	Living with friends	UK
Sam	Female	20	White	Yes	Shared student housing - on campus	International
Iris	Female	23	White British	No	Other (living in a flat my parents own with boyfriend)	UK
Poppy	Female	20	White British	Yes	Shared student housing - off campus	UK
Daisy	Female	20	White British	Yes	Living with friends	UK
June	Female	21	White British	Yes	Shared student housing - on campus	UK
Arthur	Male	22	White British	Yes	Shared student housing - off campus	UK
Blake	Did not respond	21	Did not respond	Yes	Living with friends	UK

Olive	Female	24	White	No	Living alone	UK
Mabel	Female	21	White	Yes	Living alone	UK
Karan	Male	20	British Asian	Yes	Living with friends	UK
Fara	Female	22	Indian	Yes	Shared student housing - on campus	International
Ada	Female	19	African	Yes	Living alone	UK
Hazel	Female	21	White	Yes	Shared student housing - off campus	UK
Elle	Female	19	White British	Yes	Living with friends	UK
Jo	Female	20	White British	Yes	Shared student housing - off campus	UK