Social Networking Site Use, Personality, User Habit, and Subjective Wellbeing: A Kazakhstani Pilot Study

Monowar Mahmood[1] · Md. Aftab Uddin[2] · Ha Jin Hwang[3] · Alexandr Ostrovskiy[1] · Nurlan Orazalin[1] · Mark D. Griffiths[4]

Abstract

Considering the prevalence and increased use of online social networking sites (SNSs), the present study investigated the association between visiting SNSs and users' subjective wellbeing. Data were collected from 251 participants and were analyzed using partial least square-based structural equation modeling. The findings showed that there was no significant direct influence of SNS use on users' subjective wellbeing. Additionally, the study found a significant mediating influence of passion on the association between SNS visits and subjective wellbeing. Moreover, the study did not find any significant negative mediating impact of obsession with SNS visits and association with subjective wellbeing. Among various personality traits, openness to experience had a positive moderating impact and neuroticism had a negative moderating impact on the association between SNS visits and subjective wellbeing among SNS users. The study provides implications for managers and parents regarding improved SNS use and increased subjective wellbeing.

Keywords Social networking · Well-being · Passion · Obsession · Personality · Kazakhstan

Introduction

Social networking sites (SNSs) such as *Facebook*, *Linkedin*, *Instagram*, *WhatsApp*, and *Twitter*, are now a part of daily life and individuals frequently use multiple SNSs for different purposes with varying motives (Bastos et al., 2015). SNSs refer to social media platforms where the users create their own public profiles and connect with friends and others with similar interests (Griffiths et al., 2014). The use of SNSs has increased significantly and the number of active social media at the time of writing was 4.2 billion (Statista, 2022). The multifaceted features of social network sites provide endless opportunities for continuous interaction, gathering large volumes of information to meet the needs and objectives of user groups (Chang & Hsu, 2016; Chang et al., 2015; Uddin et al., 2021).

Due to distinct human personalities, values, and attitudes, users' interactions are assumed to be diverse, and therefore, the impact of different SNSs on individuals may vary (Huang, 2019; Islam et al., 2020a, b). Studies have shown that the presence and increasing use of social networks can impact human lives both positively and negatively (Stephanidis et al., 2019; Tandon et al., 2021). Considering the widespread presence of SNSs, the present study investigated their impact on users' subjective wellbeing, and more specifically, assessed the relationship between the extent of SNS visits and the subjective wellbeing of SNSs users (Kaur et al., 2021).

Subjective well-being is an ideal mental state that individuals aspire to experience, such as happiness and life satisfaction, and this domain has become an important field of study in economic and psychological research due to the

✉ Mark D. Griffiths
mark.griffiths@ntu.ac.uk

Monowar Mahmood
monowar@kimep.kz

Md. Aftab Uddin
mdaftabuddin@cu.ac.bd

Ha Jin Hwang
hjhwang@sunway.edu.my

Alexandr Ostrovskiy
aostrovs@kimep.kz

Nurlan Orazalin
orazalin@kimep.kz

1 Bang College of Business, KIMEP University, Almaty 050010, Kazakhstan

2 Department of Human Resource Management, University of Chittagong, Chattogram, Bangladesh

3 Sunway University Business School, Sunway University, 47500 Selangor, Malaysia

4 Psychology Department, Nottingham Trent University, 50 Shakespeare Street, Nottingham NG1 4FQ, UK

increasing use of SNSs (Wang et al., 2017; Wenninger et al., 2019). Because technologies are abstract and their use and impact depend on users' personal attributes, the present study also examined the influence of user habits and personality traits on the association between SNS visit frequency and subjective wellbeing (Khan, 2021).

Previous studies have shown both the positive and negative effects of SNS use on various facets of human life (Bhatti et al., 2020; Han & Myers, 2018; Kaur et al., 2021). However, the underlying reasons and process of SNS influences on individuals' lives is comparatively less known in both academic and policy research. Although users encounter various types of information while using SNSs, little of it has a negative impact (Han & Myers, 2018; Saridakis et al., 2016; Whaite et al., 2018). Users' intentions for using SNSs can also assist and improve users' subjective wellbeing (Stephanidis et al., 2019). Moreover, user habits and personality traits have a significant role in the use of SNSs and can impact the users' lives and wellbeing (Gao et al., 2017).

Therefore, the present study formulated the underlying research questions to examine the influence of SNSs on users' subjective wellbeing: (i) Does subjective wellbeing among SNS users have any association with SNS visit frequency? and (ii) Do user habits mediate, and personality traits moderate the association between SNS visit frequency and subjective wellbeing? The findings will help policymakers provide interventions regarding SNSs information sources, usage magnitude, and thoughtfulness associated with personality traits to improve subjective wellbeing of individuals. It is also envisaged that the findings of the study could provide empirical evidence of impact of SNS visits and subsequently help to improve wellbeing of human lives. While in many cases, SNS visits are often considered as detrimental to employees' work performance, the findings could initiate a rethinking of such notions, and organizations could allow employees to visit SNSs as part of fulfilment of psychological and social needs which even could help to improve the individuals' wellbeing and organizational performance.

Theoretical Background and Hypothesis Development

The present study's objectives and hypotheses are rooted in the tenets of Social Presence Theory (Short et al., 1976), which proposes that individuals engage in social interaction to participate in and facilitate interpersonal communication as well as exchange information with one another (Gao et al., 2017; Oztok et al., 2015). As long as presence in social space (e.g., SNS sites) provides "intimacy" (i.e., a degree of attachment) and "immediacy" (i.e., a degree of reaction and responsiveness) to users, they feel motivated and encouraged to engage and interact with those objects and fellow users (Nowak, 2013). Virtual SNSs provide open platforms

where users can meet and interact with others, gather desired information, and exchange ideas concerning their preferred domains and interests (Kaye & Quinn, 2020). On SNSs, users frequently follow one another's posts, comments and activities, and they react using reciprocal comments, "likes," and other indicative information (Kim et al., 2019).

Such communication and interaction signal intimacy and immediacy among virtual communities increases the level of presence in social spaces (Oztok et al., 2015). Therefore, increased presence on SNSs promotes more social interactions, which ultimately influences human behavior and subsequent outcomes (Chen et al., 2019; Nowak, 2013; Zych et al., 2021). Each individual has their own life values, attitudes, perceptions, and preferences. Whenever they interact frequently on SNSs, such interactions shape others' subsequent psychological behavior and outcomes either knowingly or unknowingly (Chang & Hsu, 2016). Therefore, considering individuals' psychological outcome while using SNSs, the present study investigated the association between SNS visits and users' subjective wellbeing. Also, when individuals engage in reciprocal interactions with social networks, their personality traits and user habits may facilitate either positive or negative feelings regarding life and may aggravate psychological wellbeing (Brand et al., 2016). Since SNS use has become part of individuals' daily lives, the influence of personality traits and user habits also need to be investigated carefully to improve SNS efficacy and user benefits.

The present study considered SNS visit frequency (SNSVF) as the independent variable and subjective wellbeing as the dependent variable. From a social presence theory perspective, visits to SNSs provide opportunities of both "intimacy" and "immediacy" in social space and influence individuals' psychological subjective wellbeing. In the process of influencing subjective wellbeing, personality is assumed to play a significant role as shown in earlier studies (Etxeberria et al., 2019; Stead & Bibby, 2017). Therefore, the present study further considered personality as the moderating variable in the hypothesized relationship between SNS visit frequency and subjective wellbeing. Figure 1 illustrates the conceptual framework of the study.

Social Networking Sites Visit and Subjective Wellbeing

Online SNSs are common social spaces for individuals worldwide and provide users with opportunities to meet new individuals and interact more frequently (Dhir et al., 2018; Huang et al., 2021). Extended exposure to various SNSs provides more widespread information and helps individuals enjoy improved social relationships (Kaye & Quinn, 2020). However, as each individual is unique, possessing distinct thoughts and cognitive capacities, extended exposure to SNSs may develop into a passion or excessive obsession, and

Fig. 1 Conceptual model of the study. *SNSVF* social networking site visit frequency
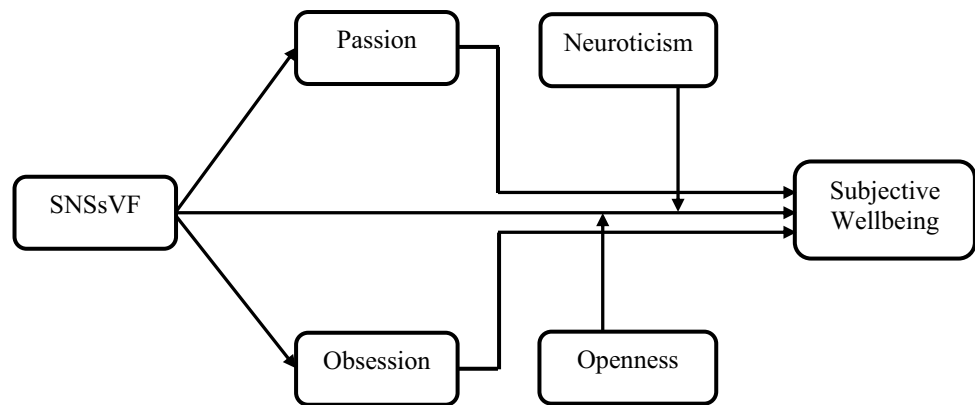
could therefore positively and/or negatively impact their psychological health and personal wellbeing (Stephanidis et al., 2019). Prior research has indicated that young people's *Facebook* use encourages closer social connection, i.e., effective peer relationships and subsequent satisfaction in life (Huang, 2017; Shi et al., 2019) and similar findings have also been observed between older people's social media use and life satisfaction (Gaia et al., 2021). A meta-analysis by Verduyn et al. (2017) reported a positive relationship between active SNS use (i.e., providing feedback on other SNS users' messages, comments or pictures) and higher levels of subjective wellbeing. However, some researchers have identified social networks' negative influence on individuals, which was expressed by such feelings as solitude, depression, degraded social skills, and other negative psychological aspects of life (Kim et al., 2019; Koç & Turan, 2021).

A study by Pontes et al. (2015) also noted that non-controlled or problematic use of internet over controlled use of internet, including SNSs, has a negative impact on users' quality of life. Kross et al. (2013) reported a U-shape relationship between social network visits and wellbeing. More specifically, they reported that users initially feel good when visiting SNSs, but that the good feelings slowly diminish over repeated SNS visits. Huang (2017) noted that, to date, the association between time spent on SNSs and users' wellbeing is diminutive. Therefore, the SNS uses are assumed to impact on users' wellbeing and other psychological aspects (Lee et al., 2010; Shi et al., 2019; Wheatley & Buglass, 2019).

The Mediating Role of User Habits on the Social Network-Wellbeing Relationship

From a psychological perspective, users' visiting habits could be explained using the dualistic model of passion comprising harmonious passion and obsessive passion (Vallerand et al., 2010). Harmonious passion posits that individuals might involve themselves in any activity or event enthusiastically through their own choice without any adverse concomitant effects (Vallerand, 2008). On the other hand, obsessive passion can compete with individuals' other life accomplishments if the passion becomes too much (Vallerand et al., 2010). Therefore, harmonious passion has been found to prognosticate subjective wellbeing, appreciation for life, positive feelings, life satisfaction, and viability (Carpentier et al., 2012). Carbonell and Panova (2017) showed that SNSs use can be considered as an object of passion and posit that individuals who frequently visit SNSs become more passionately involved.

However, sometimes passion can lead to conflict with other activities (e.g., being too passionate for an activity might result in delaying or postponing another) which leads to obstinate stubbornness and in turn impede attaining a balanced and prosperous life (Vallerand et al., 2010). Other authors have emphasized that obsessive passion could be the reason users face undesirable consequences, such as burnout and exhaustion, when involved in SNS activities (Al-Kandari & Al-Sejari, 2020; Vallerand et al., 2010). Therefore, obsessive passion can occasionally facilitate negative sentiments and despair. Ultimately, obsession with such activities can negatively affect users' life satisfaction and subsequently reduce subjective wellbeing (Philippe et al., 2009).

Previous research has shown that passion plays a substantial role in an individual's wellbeing (Marsh et al., 2013). Social networking site visit frequency could also facilitate individuals' habits of passion or obsession in relation to SNS use which could subsequently affect their subjective wellbeing. Błachnio and Przepiorka (2016) found that individuals who were more obsessed with the internet, in particular, *Facebook*, demonstrated the characteristics found among neurasthenic and introverted individuals. Although many concepts have helped identify and clarify the factors that result in an improved life, research demonstrates that the concept of passion deserves special attention (Vallerand et al., 2010).

Personality Traits as Moderators in the SNS Visit Frequency-Wellbeing Relationship

Among various personality trait categories, the Big Five framework comprising extraversion, neuroticism, conscientiousness, openness, and agreeableness is the most extensively used typology in information technology research (Huang, 2019). Stead and Bibby (2017) asserted that problematic internet use negatively influences SNS users' subjective wellbeing. Moreover, studies have reported the positive association between problematic internet use and neuroticism, whereas agreeableness, extraversion, and openness to new practices appear in the absence of problematic internet use (Kayiş et al., 2016; Montag et al., 2021). Among the Big Five traits, research has shown that neuroticism and openness traits are most commonly associated with internet and information technology use (Mark & Ganzach, 2014; Wu et al., 2018). Hastings and O'Neill (2009) found that neurotic individuals are comparatively more inclined to spiral into negative feelings quickly (i.e., to be angry, worried, and depressed). Yao et al. (2013) reinforced this finding by reporting a positive association between internet obsession and neuroticism.

A study by López-Fernández et al. (2020) reported that neuroticism had a significant positive influence on adolescents' excessive use of the internet. Other authors also confirm and support the association between neuroticism and being inclined to engage more frequently in online activities (Charlton & Danforth, 2010). Jordan et al. (2015) asserted that openness drives individuals to participate in more online activity. In summary, SNSs users with higher neuroticism and openness tend to influence subjective wellbeing more than SNSs users with lower neuroticism and openness. Based on the all the aforementioned literature, it was hypothesized that:

H_1. Social network users' subjective wellbeing would have a positive association with the SNS visit frequency.

H_2. Passionate social network use would mediate the influence of SNS visit frequency on subjective wellbeing.

H_3. Obsessive social network use would mediate the influence of SNS visit frequency on subjective wellbeing.

H_4. Openness would moderate users' SNS visit frequency and subjective wellbeing relationship.

H_5. Neuroticism would moderate users' SNS visit frequency and subjective wellbeing relationship.

Methods

Participants and Data Collection

The study sample participants were students in different universities (i.e., undergraduate and postgraduate students in various Kazakhstani universities). Purposive sampling was used because young university students are the most common SNS users (Qin et al., 2018). A total of 455 printed surveys were distributed to students through the deployment of research assistants, and 260 replies were received. A sample size of 200 is adequate for structural equation modeling (Hoelter, 1983; Loehlin, 2004). Moreover, further adequacy of the sample size was ascertained by two important determinants: (i) sample size (n) and the number of predictors (k) utilizing the "10 times rule" (Pituch & Stevens, 2016) which means a minimum of 70 participants would be needed, and (ii) five cases per parameter estimate which means 145 participants would be needed (Bentler & Chou, 1987). Therefore, the number of participants in the present study exceeded all of these guideline estimates.

After discarding responses that were unmatched, missing, or had outlier issues, a total of 251 surveys remained for analysis. The response rate for totally completed surveys was 55.16% which is moderately higher than the average response rate in similar research (Uddin et al., 2021). The demographic profile of the participants yielded a higher percentage of female participants (62.5%) than male (37.5%). Responses were collected across disciplines: 44 came from those with accounting majors (17.5%), 153 from finance majors (61.0%), and the remainder from marketing and management majors (21.5%). The majority

Table 1 Participants' information ($n = 251$)	Characteristics	Classifications	Frequencies	Percentage
	Gender	Female	157	62.5
		Male	94	37.5
	Study major	Accounting	44	17.5
		Finance	153	61.0
		Marketing	37	14.7
		Management	17	6.8
	Education	Bachelor student	174	68.3
		Master student	77	30.7
	Age (mean age = 23.17 years)	Less than 25 years	173	68.9
		More than 25 years	78	31.1

of participants were undergraduates (69.3%). Notably, the largest segment of participants was under 25 years old (68.9%) (Table 1).

Measures

The present study used the constructs from prior studies published in English. The survey excluded any identifiable detail of participants' identities to ensure accurate responses. The participants were requested to express an appropriate response to each item in the survey. Appendix A includes the survey measures used in this survey. The survey also included participants' demographic information, such as age, studied major, gender, and education. In line with Beaton et al. (2000) suggestion, a few modifications to the statements in each scale were made for the cultural adaptation in Kazakhstan context with the help of five faculty members and ten potential participants. Additionally, in line with the guidelines by Brislin (1970), a back-translation procedure was followed to translate the instrument from English into native Kazakh language to elicit accurate responses from Kazakh participants. This back-translation process was iterated until no significant difference in understanding between the original and native language was observed. In this translation process, voluntary assistance was provided by five academics and ten university graduates who were proficient in both English and Kazakh languages.

Neuroticism

The four-item Neuroticism subscale from the Brief HEXACO Inventory (de Vries, 2013) was used to assess neuroticism. Items (e.g., "*While watching or enjoying sad or romantic movies*, *I cannot control my emotions*") assessed on a six-point scale from 1 (*strongly disagree*) to 6 (*strongly agree*). Higher scores reflect higher emotional instability. The Cronbach alpha for neuroticism in the present study was 0.842.

Openness

The four-item Openness subscale from the Brief HEXACO Inventory (de Vries, 2013) was used to assess openness. Items (e.g., "*I often express criticism without considering the consequences*") were assessed on a six-point scale from 1 (*strongly disagree*) to 6 (*strongly agree*). Higher scores reflect higher openness. The Cronbach alpha for openness in the present study was 0.831.

Passionate Social Networking Use

An adapted version of the seven-item Passion subscale (Vallerand et al., 2003) was used to assess passionate social

networking use. The word "activity" or "it" was replaced by the words "social networking." Items (e.g., "*Social networking help me to develop/understand good qualities of life*") were assessed on a six-point scale from 1 (*strongly disagree*) to 6 (*strongly agree*). Higher scores indicate higher passionate use of social networking. The Cronbach alpha for passion in the present study was 0.90.

Obsessive Social Networking Use

An adapted version of the seven-item Obsession subscale (Vallerand et al., 2003) was used to assess obsessive social networking use. Items (e.g., "*I feel emotional and mental dependence on social networking*") were assessed on a six-point scale from 1 (*strongly disagree*) to 6 (*strongly agree*). Higher scores indicate higher obsession with the use of social networking. The Cronbach alpha for passion in the present study was 0.856.

Subjective Wellbeing

Six items from 10-item Personal Wellbeing Index of the Organization for Economic Co-operation and Development (2013) were used to assess subjective wellbeing. Items (e.g., "*How satisfied are you with what you are achieving in life?*") are assessed on a six-point scale from 1 (*very dissatisfied*) to 6 (*very satisfied*). Higher scores indicate greater subjective wellbeing. The Cronbach alpha for passion in the present study was 0.876.

SNS Visit Frequency

SNS visit frequency was assessed using a single item adapted from Coyne et al. (2020). The item ("*How many times do you visit social networking sites on a typical day?*") is assessed on a six-point scale from 1 (*too few times such as 0–2 times a day*) to 6 (*too many times, such as more than 10 times a day*).

Data Analysis

The present study used partial least square-based structural equation modeling (PLS-SEM), a second-generation regression technique. PLS-SEM using SmartPLS2 was chosen over other analytical tools because of its ability to estimate the overall predictability and strength of the model in an integrated manner (Hair Jr et al., 2014). PLS-SEM integrates measurement and structural models through using confirmatory factor analysis and path (structural) analysis (Fan et al., 2019). The analysis followed the bootstrapping procedure with 5000 cases to generate *t*-statistics and the significance levels (Das et al., 2019; Hair Jr et al., 2017; Yi et al., 2019).

Table 2 Psychometric properties of the scales

Items	Code	Items Loading	AVE	CR	CA	Skewness	Kurtosis	R^2
Passion	Passion1	0.844	0.713	0.926	0.900	−0.879	1.504	.070
	Passion3	0.837				−0.976	1.540	
	Passion4	0.832				−1.089	1.985	
	Passion6	0.864				−0.961	1.561	
	Passion7	0.846				−1.045	1.887	
Neuroticism	Neuroticism1	0.702	0.650	0.880	0.842	−0.746	2.041	N/A
	Neuroticism2	0.878				−0.731	1.016	
	Neuroticism3	0.896				−1.000	1.759	
	Neuroticism4	0.730				−0.778	1.891	
Openness	Openness1	0.816	0.663	0.887	0.831	−0.805	1.445	N/A
	Openness2	0.829				−1.121	3.175	
	Openness3	0.789				−0.486	.797	
	Openness4	0.822				−0.975	1.662	
Obsession	Obsession1	0.821	0.686	0.897	0.856	0.665	.231	.010
	Obsession4	0.915				1.032	1.503	
	Obsession5	0.830				0.658	.289	
	Obsession7	0.738				0.673	.456	
Subjective wellbeing	Swb1	0.833	0.730	0.915	0.876	−0.802	1.048	0.509
	Swb2	0.871				−0.936	1.218	
	Swb3	0.864				−0.689	.714	
	Swb6	0.848				−0.872	1.214	

AVE average variance extracted, *CR* composite reliability, *CA* Cronbach Alpha, *swb* subjective wellbeing

Measurement Issues

In its measurement model, the study tested its variables and found them suitable for representing distinctive constructs. Accordingly, composite reliability, convergent validity, and discriminant validity were estimated for all the constructs. Composite reliability assesses an item's consistency in underlying a construct; convergent validity and discriminant validity assert items' suitability to represent or be distinct from the intended construct (Azim et al., 2019; Uddin et al., 2019). Whereas convergent validity reflects the higher correlation among items representing a construct, discriminant validity demonstrates the distinctiveness of a construct from other constructs (Hair Jr. et al., 2017). Three obsession items and two passion and subjective wellbeing items were dropped due to poor regression weights. In Table 2, minimum composite reliability and Cronbach's alpha scores are 0.880 (neuroticism) and 0.831 (openness), which are adequate for SEM applications and considered acceptable for SEM. To assess convergent validity, average variance extracted (AVE) was estimated, yielding the lowest AVE for any given construct as 0.650 (neuroticism), which is above the minimum threshold limit (0.50) (Das et al., 2019; Fan et al., 2019; Yi et al., 2019). Data normality was also tested. In line with the findings of Shan et al. (2013), the data were normally distributed because both skewness and kurtosis were within the limits of 1.70 and 3.00, respectively.

Estimates in Table 3 demonstrate the discriminant validity following Fornell-Larcker's criterion. The estimates show that the square root of a particular construct's AVE is higher than its correlation with other constructs. Therefore,

Table 3 Correlation matrix and Fornell-Larcker criterion for discriminant validity

Latent variables	Neuroticism	Obsession	Openness	Passion	SNSVF	SWB
Neuroticism	0.806					
Obsession	−0.065	0.828				
Openness	0.123	−0.208	0.814			
Passion	0.088	−0.198	0.211	0.845		
SNSVF	0.110	−0.057	0.109	0.315	1.000	
Subjective wellbeing	0.126	−0.215	0.357	0.673	0.283	0.854

SNSVF social networking site visit frequency, *SWB* subjective wellbeing

no concern in discriminant validity existed among the constructs (Fornell & Larcker, 1981). Additionally, confirmatory factor analysis estimated in Table 3 shows that items were highly loaded to their respective constructs than others (Chin, 1998). No items were loaded to variables other than those within their own construct (Table 4).

The structural model estimated the coefficient of determination (R^2), effect size, variance inflation factor (VIF), and coefficient (β). The coefficient of determination demonstrates the structural model's overall predictive power, and the beta-coefficient indicates the influence that exogenous variables have on endogenous variables (Mahmood et al., 2019; Uddin et al., 2019). To ensure the model's robustness, the data were further checked for collinearity issues. Previous studies show that a VIF above 10 might jeopardize the model and its predictability (Field, 2018). However, Table 5 shows that the maximum VIF was 1.171 (subjective wellbeing). Therefore, collinearity was not a major concern.

Additionally, effect size accounts for the variance in endogenous variables that their exogenous variables may cause. An effect size (R^2) value > 0.02 is considered in the medium category, while > 0.15 is considered large. Additionally, an effect size larger than 0.20 is adequate in the management science discipline (Hair Jr. et al., 2017). Figure 2 shows the path relationships, *p*-value, and R^2 estimates. The estimates in Fig. 2 demonstrated mixed results, containing

Table 5 Estimates on multi-collinearity

Aspect	Obsession	Neuroticism	Openness	Passion	Subjective well-being
Tolerance	.937	.988	.921	.934	.854
VIF	1.067	1.013	1.086	1.070	1.171

both significant and non-significant path relationships. It was observed that independent variables jointly accounted for a 51% (R^2) change in subjective wellbeing that satisfies the threshold limit (Cohen, 1988; Hair Jr et al., 2014). Social networking explained a 10% (R^2) change in passion and a 0.3% (R^2) change in obsession.

Results

Figure 2 shows that social network use frequency was not positively associated with users' subjective wellbeing (β = 0.065, *p* = 0.381). Therefore, the empirical findings do not support H_1. In H_2 and H_3, it was hypothesized that passion and obsession would mediate the association between SNS visit frequency and subjective wellbeing. Table 6 shows the estimates of the mediating effects of passion and obsession. The analysis tested the influence (c) of users' SNS

Table 4 Confirmatory factor analysis

Items	Neuro	Obsession	Openness	Passion	SNSVF	SWB
Neuroticism1	0.702	−0.039	0.032	0.026	0.117	0.029
Neuroticism2	0.878	−0.065	0.097	0.059	0.113	0.120
Neuroticism3	0.896	−0.070	0.141	0.112	0.083	0.133
Neuroticism4	0.730	0.014	0.060	0.031	0.056	0.036
Obsession1	−0.020	0.821	−0.216	−0.086	−0.036	−0.139
Obsession4	−0.043	0.915	−0.172	−0.224	−0.072	−0.259
Obsession5	−0.091	0.830	−0.173	−0.166	−0.076	−0.134
Obsession7	−0.095	0.738	−0.131	−0.137	0.058	−0.098
Openness1	0.115	−0.142	0.816	0.160	0.082	0.299
Openness2	0.039	−0.215	0.829	0.128	0.055	0.286
Openness3	0.162	−0.209	0.789	0.203	0.076	0.288
Openness4	0.085	−0.113	0.822	0.195	0.141	0.290
Passion1	0.092	−0.215	0.148	0.844	0.240	0.600
Passion3	0.037	−0.186	0.223	0.837	0.278	0.545
Passion4	0.101	−0.174	0.171	0.832	0.309	0.587
Passion6	0.094	−0.123	0.214	0.864	0.271	0.552
Passion7	0.043	−0.135	0.135	0.846	0.230	0.552
SNUF	0.110	−0.057	0.109	0.315	1.000	0.283
SWB1	0.124	−0.209	0.301	0.549	0.229	0.833
SWB2	0.126	−0.151	0.261	0.609	0.278	0.871
SWB3	0.068	−0.187	0.311	0.569	0.176	0.864
SWB6	0.112	−0.189	0.349	0.569	0.280	0.848

SNSVF social networking site visit frequency, *SWB* subjective wellbeing

Fig. 2 Structural model with path-coefficient. *SNSVF* social networking site visit frequency
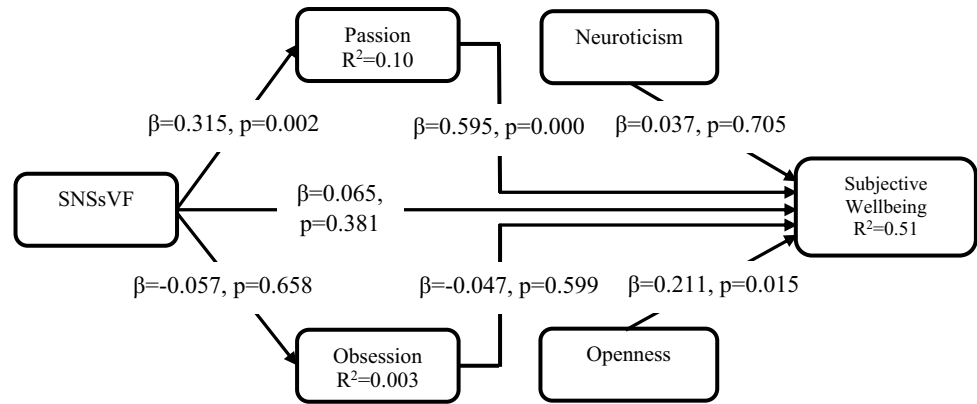
visit frequency on subjective wellbeing before running the mediating effect in H_2. Accordingly, the analysis tested the indirect effects from users' visit frequency on SNSs to passion and passion to subjective wellbeing after running the mediating variable (passion). Since all indirect effects ("a" and "b") were significantly associated, the analysis further examined the direct effect ($c^{/}$) after using a mediating variable, which was found to be non-significant. In line with explanations by Hair Jr. et al. (2017), Azim et al. (2019), Fan et al. (2019), and Uddin et al. (2019), full mediation existed. Therefore, H_2 was supported. While examining the mediating influence of obsession in H_3, it was observed that neither indirect effect of users' SNS visit frequency on SWB nor the direct effect ($c^{/}$) of users' SNS visit frequency on SWB were found to be significant. Consequently, H_3 was not supported.

To examine the moderating effect of neuroticism and openness, the study followed the procedure by Lowry and Gaskin (2014). Figure 2 shows that neither neuroticism ($\beta = 0.037$, $p = 0.705$) nor SNS visit frequency ($\beta = 0.047$, $p = 0.381$) had any significant influence on users' subjective wellbeing. Therefore, the condition for the existing significant effects of the moderating variables and predictor variables to ensure the moderating effect on the dependent variable did not exist. Therefore, the moderating effect of neuroticism on subjective wellbeing (H_4) was not supported. Finally, the analysis examined the

moderating effect of openness on the association between SNS visit frequency and subjective wellbeing. Findings in Fig. 3 highlight the moderating effect of openness on the impact of SNS visit frequency on subjective wellbeing was also non-significant ($\beta = 0.033$, $p = 0.524$). Therefore, H_5 was supported.

The interaction effect is shown in Fig. 4, which shows the positive moderating effect of openness on passion's impact on subjective wellbeing. The findings showed that when openness was high, high passion led to higher subjective wellbeing. On the other hand, when openness was low, high passion did not change users' subjective wellbeing. This moderating influence was non-significant ($\beta = 0.340$, $p = 0.620$) with 5000 bootstrapped resamples and 95% confidence intervals.

Discussion

The present study's main objective was to investigate the association of SNS use with subjective wellbeing among young adults. In contrast to previous findings, the findings showed no significant association of SNS visit frequency with young people's lives nor their wellbeing. This generation grew up amid technological innovations, which caused them to not only understand the technologies but to be aware of their

Table 6 Estimates of mediation effects

Hypothesis	Path	Mediator	Direct effect	*p*-value	Indirect effects	Total effects	VAF/comments
H_2	SNUF SWB (c)		0.290	$p = 0.00$		0.253	0.741
	SNUF PS (a)		0.315	$p = 0.00$			Full mediation
	PS SWB (b)		0.631	$p = 0.00$			
	SNUF SWB ($c^{/}$)	PS	0.065	$p = 0.38$	0.188		
H_3	SNUF SWB (c)		0.290	$p = 0.00$		N/A	No mediation
	SNUF OS (a)		-0.057	$p = 0.66$ [ns]			
	OS SWB (b)		-0.047	$p = 0.60$ [ns]			
	SNUF SWB ($c^{/}$)	OS	0.065	$p = 0.38$ [ns]	N/A		

SNSVF social networking site visit frequency, *PS* passion, *SWB* subjective wellbeing, *OS* obsession, *ns* not significant

Fig. 3 Moderating effect of openness in structural model. *SNSVF* social networking site visit frequency
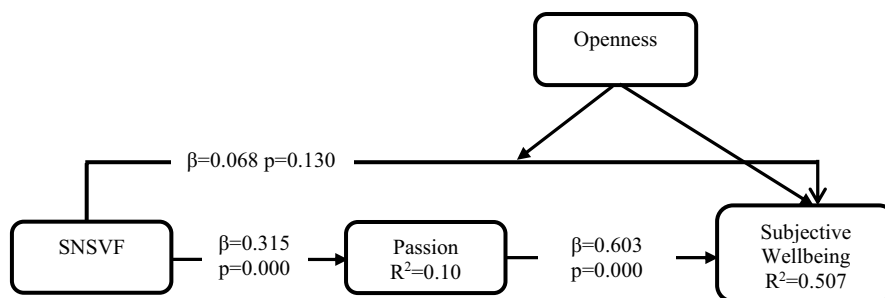

pitfalls. Despite constant exposure to SNS visit frequency, they feel good when they receive and interact with intended and unintended information on social network sites.

SNSs continuously update and feed users' new information, which ignites their inherent human curiosity and entices the users to visit the sites as frequently as possible (Chang et al., 2015). Social networking technologies' virtual platforms expand individuals' horizons in meeting with others and sharing or exchanging opinions and feelings that they deem stimulating and interesting (Mark & Ganzach, 2014). Each SNS has unique features and offers different utilities to its users. Many technological platforms for social networking sites exist, and most individuals use multiple social networking sites simultaneously for various reasons. As long as users get diverse and user-friendly information using SNS sites, they further continue using SNS sites. Therefore, the study's findings

are in agreement with prior research (Clark et al., 2018; Ha et al., 2015). Additionally, Ha et al. (2015) showed that internet and social networking sites facilitate social interactions and pleasant feelings among users.

The present study also investigated the mediating role of passion and obsession toward SNS visits. The empirical findings showed that passionate use of SNS positively mediates SNS visit frequency and subjective wellbeing. It seems that as long as users are enthusiastic and find the content and information interesting, they will continue visiting the sites without experiencing negative feelings. Believing that they are obtaining relevant and necessary information may lead them to feel better about their SNS use. Meanwhile, no substantial effect of obsession on subjective wellbeing exists which negates previous research because obsession to SNS, such as overuse or underuse of SNS, negatively impacts various facets of lives (Han & Myers, 2018). Individuals might

Fig. 4 Interaction effect of openness. *SWB* subjective wellbeing, *SNSVF* social networking site visit frequency
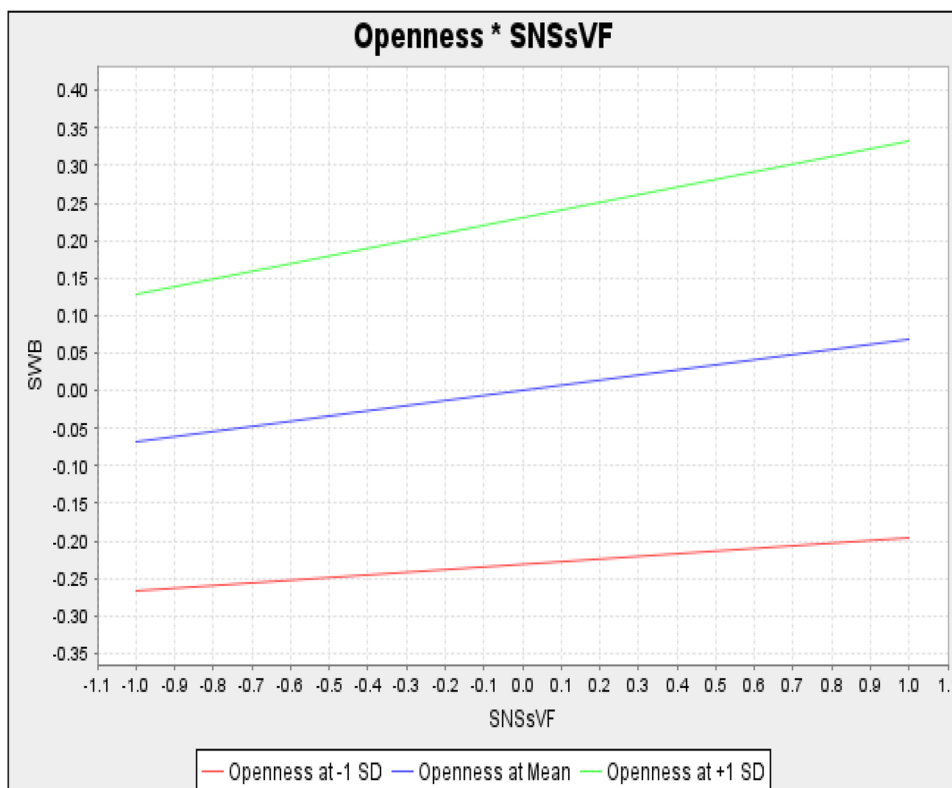
reconsider their choices of SNS between "necessary means" and "unnecessary evil" in their different aspects of lives.

Additionally, the research further investigated the moderating effect of neuroticism and openness on the association between SNS visit frequency and subjective wellbeing. The findings showed that the traits of openness to experience and neuroticism did not have any moderating impact on the association of SNS visit frequency and subjective wellbeing. However, the direct effect of passion on users' subjective wellbeing was significant. These findings align with previous findings with respect to the use of various SNSs (Blackwell et al., 2017; Kayiş et al., 2016). Openness and agreeableness tend to facilitate engagement, which in consequence contributes to a more positive aptitude (Tov et al., 2016). Although neuroticism may occasionally create fear of missing out from their loops or SNS users, it does not seem to impact wellbeing as long as users are passionate about and aware of their SNS use and its successive impacts (Blackwell et al., 2017).

Contributions of the Study

From a theoretical perspective, the findings contribute to both the information management and social psychology literature. First, the study found a mediated influence of passion in the association between extended SNS use and subjective wellbeing. Consequently, the findings of the study reiterate applicability and validity of SPT in context of new SNS technology use. In the era of a highly individualized society, the proliferation and penetration of information technology and social networks provide a sense of belongingness for users who interact in these virtual platforms. As SNSs appear to increase feelings of intimacy and immediacy among the younger generation, passionate use of SNSs could improve their subjective wellbeing. Therefore, it could be considered as an activity that fulfills their social needs. Second, the study showed the mediating effect of passion and obsession that opens potential avenues for linking SPT through psychological mechanisms, such as the theory of reasoned action. Integration could allow a strengthening of the information technology and life satisfaction relationship and bring greater positive attributes to daily lives.

Implications for Managers and Parents

SNS use is often considered negatively. For instance, most organizations prevent employees from using SNSs during work hours. The present study found a non-significant association between SNS use and subjective wellbeing, therefore it is suggested that managers might perhaps rethink how using SNSs could enhance employees' wellbeing with a mediated mechanism of passion rather than limiting SNS use in the workplace. Similarly, parents should not prohibit their adolescent children using SNSs given that SNS use

in moderation is an outlet for them to interact with friends and acquaintances and helps adolescents to meet their social needs. Considering the nature of the jobs and the type of businesses, responsible managers must identify appropriate interventions to optimize SNS use benefitting both employees and organizations (Qin et al., 2018). Similarly, parents should be educated on the practical benefits for their adolescent children given that SNS use could be useful for the adolescents to improve their social lives.

Limitations and Directions for Future Research

Although several measures were taken to limit response bias, such as back-translation of the scales (Brislin, 1970; Qin et al., 2018), Harman's one factor test (Harman, 1967), and inter-scale correlation (Bagozzi et al., 1991; Pavlou et al., 2007), the present study has some limitations that restrict the robustness of the findings. First, it examined the association of SNS visits in with users' subjective wellbeing but the duration of the visits was not assessed. Future studies should therefore examine the impact SNS visit time duration on users' subjective wellbeing. Second, the study was conducted in only one country and the degree of SNS use intensity and sensitivity might be varied in different cultural differences (Qin et al., 2018). Future studies could contain samples from different countries, which could help produce more reliable, generalized findings. Third, the study only collected cross-sectional data from Kazakhstan and this prevents the generalization of the findings. Future research using larger sample sizes with longitudinal survey data could be useful to understand better the relationship between SNS visit frequency on user subjective wellbeing. Fourth, the study relied on participants' retrospective report of their SNS use and visiting time. Prior research has shown that users provide inaccurate responses of retrospective information of SNS use and visiting time when self-reporting (Ellis et al., 2019). Future research using the real-time objective information of SNS use habit and visiting time could provide more accurate and reliable results concerning the impact of SNS on human behavior. Additionally, the present study only investigated the mediating roles of passion and obsession and moderating effects of openness and neuroticism, but other personality types, particularly conscientiousness, were not investigated and this might influence the relationships between SNS use and subjective wellbeing. Thereby, future studies might consider other control variables, which would provide a holistic understanding of SNS use and its subsequent impact on subjective wellbeing. The findings of the present study add new evidence to the literature on SNS use and subjective wellbeing. It showed that passionate use of SNS was positive in relation to subjective wellbeing, and suggests that behavioral interventions are needed for reducing obsessive use of SNS use in daily life.

Appendix A: Survey measures

Social networking—Passion

Social networking allows me to feel different experiences of life

Social networking brings new things to me that I do not find in other sources

Social networking creates a variety of good memories for me

Social networking helps me to develop/understand good qualities of life

Social networking engagement matches with my routine activities

Social networking use is hobby for me, and I am able to control use of it

I am happy with my engagement in social networking

Social networking—Obsession

Sometimes, life without social networking seems to be boring

It is difficult to imagine life without social networking

I feel disappointment/frustration without social networking

I feel emotional and mental dependence on social networking

I experience difficulties in controlling social networking usage

I think, I am using social networking too much

My mood changes completely because of social networking presence or absence

Personality—Neuroticism

I am scared of feeling stress

In difficult situation, I feel less nervous than my friends. (Reverse scored)

While watching or enjoying sad or romantic movies, I cannot control my emotions

I can control my emotions or bad behavior even when someone treats me badly. (Reverse scored)

Personality—Openness

I like people with creative and new ideas

I postpone complicated tasks as long as possible. (Reverse scored)

I often express criticism without considering the consequences

I am not a big fan of scientific experiments. (Reverse scored)

Subjective wellbeing

How satisfied are you with what you are achieving in life?

How satisfied are you with your physical health?

How satisfied are you with your psychological/mental well-being?

How satisfied are you with your personal relationships?

How satisfied are you with your financial condition?

How satisfied are you with your academic achievement/result?

SNS visit frequency

How many times do you visit social networking sites on a typical day?

Declarations

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