

A STUDY OF EMOTIONAL INTELLIGENCE IN INDIVIDUALS WITH BIPOLAR DISORDER

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Presentations

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Abstract

Existing research predominantly focused on aspects of emotional intelligence (EI) such as perception and regulation of emotion in individuals with bipolar disorder (BD). Moreover, previous research used participants with BD as a clinical control group when studying other types of psychiatric disorders, for example schizophrenia and unipolar depression. Therefore, the current research aimed at investigating all aspects of EI (perception and understanding, use of emotion to facilitate thought and regulation) in individuals with BD.

The first study was a questionnaire-based quantitative study that aimed to identify if individuals with BD differ in their EI from people in the general population and find if participants' responses indicates a relationship between EI and alexithymia. Study two was an experiment that measured perception and recognition of emotion with a face emotional performance recognition accuracy, error and response time task. Study three was qualitative. It aimed to provide an in-depth understanding of positive and negative emotions in individuals with BD.

The questionnaire-based study had 96 participants; participants with BD ($n=44$) were recruited through support groups, and the remainder ($n=52$) were adults from the general population (controls). Thirty-five participants from the questionnaire-based study participated in the experiment and qualitative studies. In study 1, the results show that individuals with BD had a low level of EI in comparison to healthy controls. In addition, individuals with BD had more emotion regulation difficulties. Thirdly, alexithymia was negatively correlated with EI. Lastly, correlation analysis found mood symptoms of BD (depression and mania) to be correlated with EI, particularly depression. In study 2, participants with BD did not differ from the controls in their emotion recognition accuracy and the BD group had significant misattributions of anger. In study 3, three themes emerged from semi-structured interviews with individuals with BD and controls: emotion recognition, psychological wellbeing, and psychological states.

In conclusion, the findings showed that people with BD have limited levels of EI. Therefore, psychological treatment for people with BD should focus on facilitating improvement of EI, and prevention of maladaptive strategies to communicate and deal with emotion. Future research could build on these findings, for example through researching what strategies to communicate and deal with the emotion individuals with BD are likely to adopt in the phases of BD.

Chapter 1

Introduction to the thesis

The concept of emotional intelligence has been an important area of psychological research in recent times. Emotional intelligence is essential because of its applicability to daily activities. Daily activities involve people; therefore, anything that has an impact on the effectiveness of people's thoughts and processes also impacts the outcomes.

Research articles and books researched for this thesis were obtained through a computerised literature search of the MEDLINE, JSTOR, PsycINFO, Science Direct and PubMed databases from 1910 through 2018 using the keywords "emotion, emotional intelligence, emotion-perception, -recognition, -identification, affect-perception, and bipolar disorder, mania and depression". By cross-referencing from articles, books and reviews, a thorough manual search was also executed. The search was constrained to include only publications printed in English language. Suitable studies were those that examined emotion and emotional intelligence in bipolar disorder and other psychiatric illnesses (e.g. schizophrenia). In addition, articles were reviewed to determine if they included relevant statistical information and procedures that can be replicated. Eligible studies used quantitative, qualitative or experiment as their method of data collection.

1.1 Emotional Intelligence (EI)

Researchers (Bar-On, 1997; Goleman, 2001; Mayer, Caruso & Salovey, 1999) have proposed that emotional intelligence (EI) is a separate form of intelligence and should not be classified as a part of general intelligence. This is because EI entails monitoring one's own emotions and the emotions of others, the ability to relate to people and to discriminate among their emotions, using it to guide one's thinking and actions. EI is particularly important in different professional fields; For example, in psychology (Bracket, Mayer & Warner, 2004), education (Elias, Hunter & Kness, 2001), human resource management to improve teamwork and building relationship at work (Lopes, Salovey, Cote & Beer, 2005), and politics for understanding behaviour and the impact of emotion on making decisions (Marcus, Neuman, & Mackuen, 2000), hence, the growing interest in this research.

Various definitions of EI have been proposed based on different theoretical approaches. EI is regarded as the ability to process emotional information and understand and manage these emotions (De Raad, 2005). Emotional competencies are imperative to maintain social interaction as emotions help people to communicate and convey information about their thoughts, intentions and to also manage their social interactions (Keltner & Haidt, 2001). Davies, Stankov and Roberts (1998) described EI as the ability to discover, assess and control one's emotions and the emotions of others. Although some mixed approaches of EI have defined it as a model including emotion competencies, they have however added additional qualities (Gohm, 2004). Whilst Bar-On (1997) defined EI as various mix of traits and skills that influence one's ability to succeed, such as assertiveness and self-actualization, Goleman (1998)'s model of EI defined EI as including qualities such as communication and trustworthiness. The different definitions of EI has led to considerable confusion and misunderstandings as to what EI is or should be (Daus & Ashkanasy, 2003; Mayer, 2006). According to Murphy and Sideman, (2006), the EI concept is beginning to cover too many different things and traits. Hence, the original definition of EI as conceptualised by Mayer and Salovey (1997), is the capacity to perceive, understand, reason and manage emotions. Mayer, Salovey, and Caruso's (1997) EI concept is distinguished from other approaches to the definition of EI because a valid conception of EI incorporates aspects of emotion and an individual's capacity to succeed in their social interaction (Salovey & Grewal, 2005). Additionally, it includes the ability to engage in information processing about an individual's own emotions and others with the capacity to use this information as a guide to their thinking, actions and behaviour (Mayer et al., 1997). In sum, individuals high in EI pay attention to, perceive, use, understand, and manage emotions. These skills serve as adaptive functions that may help individuals to navigate their social worlds more effectively and make better choices that potentially benefit them and others (Brackett, Rivers & Salovey, 2011; Mayer, Salovey, & Caruso, 2004; Salovey & Grewal, 2005). Based on this evidence, this research thesis defines EI as the ability to perceive and understand emotion in the self and in others and use emotion to facilitate thoughts and regulate emotion in the self and in others (Mayer et al., 1997). The aspects of EI (Perception, understanding, use of emotion and regulation) as defined are described;

1.1.1 Perception and understanding of emotions

To perceive emotions, an individual has to be aware of their emotions; emotional perception allows people to respond with appropriate emotional reactions to situations. Perception of emotions can be verbal or non-verbal. Emotion perception describes the capacity to recognise, be aware of and the ability to identify emotions in oneself and others as well as perceiving and identifying emotion in other stimuli. For example, recognising emotions in music, literary works, stories and other people's voices (Brackett & Salovey, 2006; Scherer, Manse & Wallbott, 2001), or an ability to identify honest from dishonest expression of emotions (Mayer et al. 2000). Perceiving emotion about oneself limits difficulty identifying and describing such emotions (Parker, Taylor, & Bagby, 2001), improves self-awareness (Lane, Quinlan, Schwartz, Walker & Zeitlin, 1990) and limits difficulty expressing emotions. Perceiving emotions in other people involves being sensitive to other people's affect (Mayer & Salovey, 1997), accepting other people's affect (Buck, 1976) and understanding the nonverbal communication of others (Brackett & Salovey, 2006). The perception of emotions can help give meaning to situations. If a person shows an angry emotional reaction, an observer will be able to recognise the presence of anger, interpret what this expression means and what might have triggered the anger. For example, if a line manager arrives at work in an angry state, employees could assume that he had an unpleasant time at home, or a difficult commute, or is ruminating on a particularly irritating issue. A person who is good at perceiving emotions in self and others will be better able to predict the emotional responses of other people.

Accurate perception of emotion is crucial as it enables empathy, permits socially acceptable behaviours and improves social and intercultural adjustments (Leppänen & Hietanen, 2001; Yoo, Matsumoto, & LeRoux, 2006). Misperceiving emotions reduces social communication, leads to unwarranted emotional responses and possibly increases social withdrawal (Hooker & Park, 2002; Schultz et al., 2001). Misperceiving facial emotional expressions diminishes the precision of inferences made about an emotional state of a communicator, which in turn reduces the way social information is interpreted, therefore leading to various maladaptive psychosocial consequences (Batty & Taylor, 2003).

Understanding emotions involves using emotions attentively and reflecting on the capacity to analyse emotions (Brackett & Salovey, 2006). This involves the use of emotions in an empathic way and the process of emotions and understanding the different emotions people go through. Understanding emotions can help individuals manage interpersonal

communications. People who have a good understanding of emotions will have good appreciation of relationships, understand different human phases and are able to identify two or more feelings of emotions at once. They are careful with words during situations and make meanings to different emotional experiences. They will also be able to acknowledge their own emotions (Mayer & Salovey, 1997). Understanding emotions also enables individuals to express emotions naturally and acknowledge their own and other people's emotions (Brackett & Salovey, 2006).

1.1.2 Using emotions to facilitate thoughts

Emotion has been defined as a complex state of feeling that results in physical and psychological changes that influence thought and behaviour (Scherer, 2000). Emotions are adaptable thus promoting cognitive actions and rational thinking. The ability to adapt emotion helps individuals prioritise what they want to pay attention to, and also helps them to emotionally respond to these priorities (Davies et al. 1998). Emotions can motivate performance (Mayer, 2000) by prioritising our thinking which helps to direct attention to important information and encourage specific problem- solving approaches (Mayer & Salovey, 1997; Salovey & Mayer, 1990). For example, experiences of happiness could facilitate reasoning and creativity.

The use of emotions to facilitate thoughts explains a person's ability to separate the various emotions that is being felt and being able to use these emotions to connect with the state of mind that help with cognitive processes such as interpersonal communications, problem-solving, decision making and reasoning (Mayer, Salovey & Caruso 1997). Using emotion to facilitate thought also helps to think rationally, focus attention and think logically (Brackett & Salovey, 2006). A person who uses emotions to facilitate thoughts might be able to guide their emotions towards positivity and productivity, and also encourage themselves to do well all the time (Mayer, Salovey & Caruso, 2000).

1.1.3 Regulation and management of emotions

Mayer and Salovey (2006) defined regulation and management of emotions as the ability to regulate moods in oneself and other people. According to them, managing one's feelings entails an ability to differentiate, monitor and label feelings appropriately, believe that they can improve and modify these feelings, employ strategies that will alter their feelings and assess the effectiveness of these emotional strategies. Regulating emotions enables an

individual to recover quickly from negative psychological states. For example, after becoming very excited or upset, a person may be able to quickly get back to their normal state of being (Davies et al., 1998). This could also help such individuals to control their temper (Law et al. 2004). According to Catran and Meiran, (2009) and Sheppes and Meiran, (2008), when emotional regulation intensity is low, distraction and reappraisal can both reduce negativity and low self-esteem but only reappraisal allows for emotional processing which is important for long-term adaptation.

Regulation of emotion has also been referred to as the ability to control one's own mood and the mood of others. People who manage their positive and negative emotions are able to observe, extricate and label their emotions correctly, trust that they can modify their emotions and employ approaches that will improve their emotions (Law et al. 2004). They can also assess the usefulness of these strategies (Brackett & Salovey, 2006). Management and regulation of emotion is an important part of EI as it is the highest and the most complex part of EI. The ability to regulate the emotion of oneself and others is built on the basis of the competencies of the other branches (perception, understanding and use of emotion to facilitate thought) of EI (Fernandez-Berrocal & Extremera, 2006; Gruber, Purcell, Perna & Mikels, 2013). A person who can manage and regulate emotions will, for example, know what to say or do to cheer up their friends and family, motivate their teammates at work and inspire other people.

1.2 Theoretical approaches to EI

Petrides, Pita and Kokkinaki, (2007) proposed that two types of EI exist, Trait EI and ability EI. Trait EI incorporates behavioural characteristics and self-perceived abilities. This is measured with the information collected with self-report measures or performance measures, while the ability EI is an actual cognitive ability and measured with performance-based tests (Petrides and Furnham, 2001). Examples of ability connotations by Bar-On's Emotional Quotient inventory are "I think I can control difficult situations", "I know how to deal with problems that may upset me" (Bar-On, 2002). Mayer and Salovey (1993, 1997) described EI as an ability that implies right answers to feelings.

Ability and Trait theoretical approaches have guided the current lines of EI research. These approaches aim to discover the emotional components that motivate emotionally intelligent people and the mechanisms and processes that instigate the use of these emotional abilities in their everyday life. There are currently three theoretical approaches in the study of EI: Mayer and Salovey's (1997) EI ability-based model, Bar-On's emotional-social

intelligence model and Goleman's emotional competencies model (Goleman, 1998; 2001). Theoretical models of EI are described below in section 1.2.1, 1.2.2, 1.2.3 and critiqued in section 1.2.4.

1.2.1 Mayer and Salovey's (1997) four branch EI model

Salovey and Mayer (1990) first coined the term "EI" and have continued to research this area. Their proposition of the four-branch model of EI comes from their theory that individuals are different in the ways they process information of an emotional situation and that humans vary in their ability to relate these emotional processing to different thoughts and processes (Mayer, Salovey & Caruso, 2000). Figure 1 describes the four areas of capacities that collectively define the many of areas of EI. Mayer and Salovey (1997)'s model is a four-branch model of EI that describes three branches of EI (perception, understanding and regulation) as involving reasoning about emotions and the fourth branch (use of emotion to facilitate thought) involves using emotions to improve reasoning (Brackett & Salovey, 2006). According to Mayer and Salovey (2007), these branches of EI are in order (perception, understanding, use of emotion to facilitate thought and regulation) from basic to higher-order abilities, and they develop as an individual age. The empirical evidence Mayer, Salovey and Caruso (1997) have presented for this model is an identification task, they asked participants to identify emotions on faces, designs and colours. The participants' ability to identify emotions and performance in responding to emotional situations was used to support evidence for the model (Sternberg, 2000). As stated in section 1.1, the definition of EI in this thesis supports Mayer and Salovey (1997)'s model of EI.

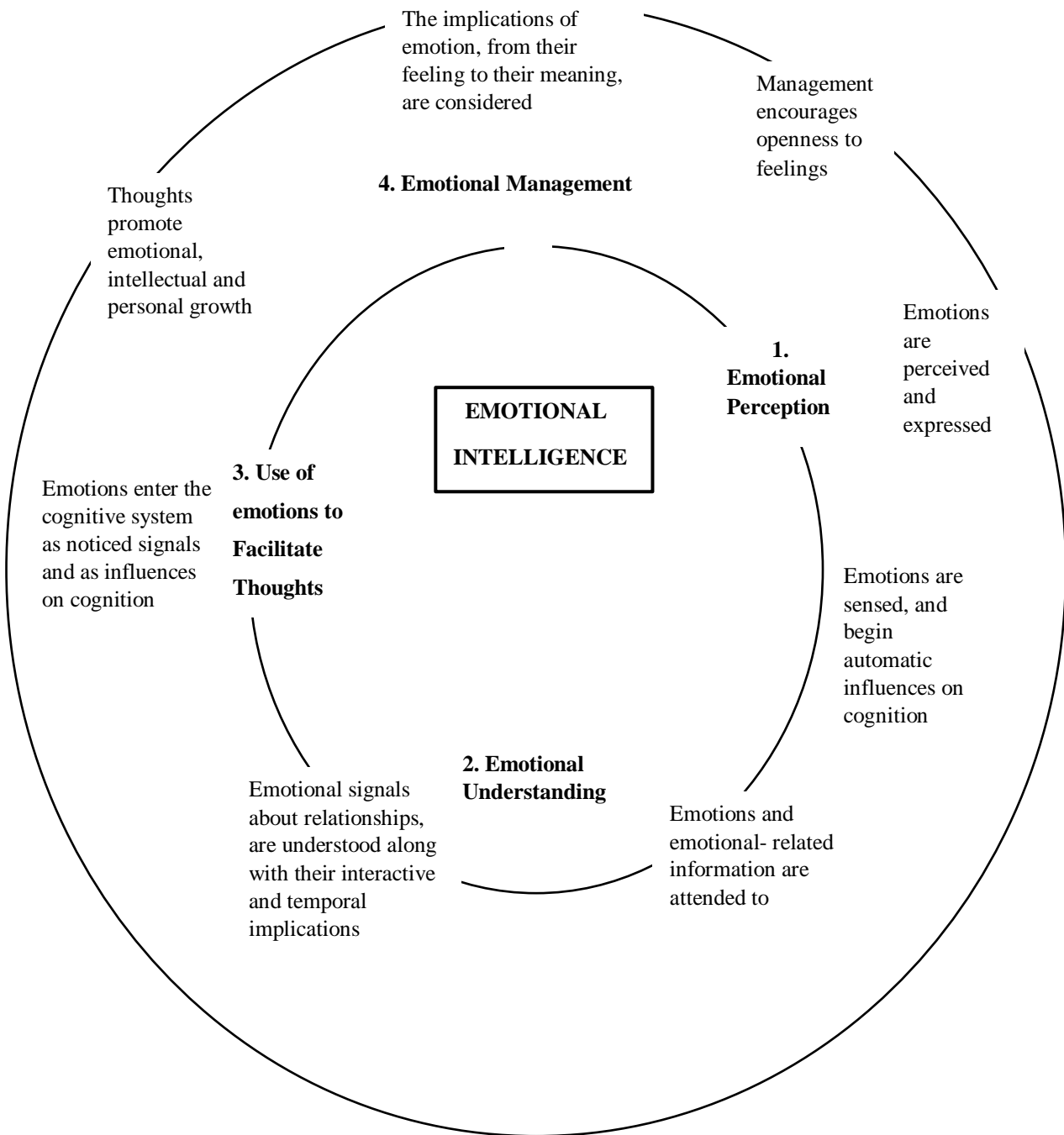


Figure 1: Mayer and Salovey's (1997) four branch model of EI by Stys and Brown (2004)

1.2.2 Bar-On's emotional social intelligence model (Bar On, 1997; 2000; 2006)

In contrast to the Mayer and Salovey's (1997) ability model, Bar On's social intelligence model is a mixed model of EI that consists of emotional, skill and social competencies that are divided into areas that interact with each other (intrapersonal, interpersonal, adaptability, stress management and general mood). The empirical evidence that supports this emotional social intelligence model comes from studies of neurological patients who have experienced damage to the ventromedial prefrontal cortex, amygdala and somatosensory cortices of the brain. These parts of the brain are associated with emotional signalling and making effective personal and interpersonal decisions (Bar-On & Parker, 2000). An example of a clinical case study that have proved this include an individual who suffered an injury to his ventromedial prefrontal cortex (Bar-On & Parker, 2000). As a result of this injury, he had a drastic behaviour change that made him lose interpersonal skills. Furthermore, Bar-On, Tranel, Denburg and Bechara (2003) gave the Bar-On Emotion Quotient Inventory (EQ-i), decision-making measures, cognitive intelligence and social functioning measures to patients with ventromedial prefrontal cortex, amygdala, and somatosensory cortices lesions. Participants with damage to those brain areas showed low EI and difficulties in social functioning; however, they had normal cognitive intelligence (Bar-On et al., 2003). According to Bar-On (2002), EI and cognitive intelligence contribute equally to a person's intelligence which predicts a person's potential to succeed in life. This evidence proves that EI may be a separate construct from cognitive intelligence, and that EI is essential to both personal and social functioning (Bar-On et al., 2003).

Bar-On (1997) also developed one of the first measures that used emotional quotient (a self-report measure of EI) to measure EI. He hypothesised that people with emotional quotients that are higher than average are generally more successful in meeting the demands and pressures of the environment. According to him, the main aim of the emotional social intelligence model is the ability to understand oneself and others, be able to cope with daily environmental demands and an ability to problem solve in changing situations.

Bar-On (1997; 2000) stated that components of EI can be grouped in the following parts:

1.2.2.1 Intrapersonal aspects

This aspect describes EI as five components (emotional self-awareness, optimism, self-regard, self-actualisation and independence). *Emotional self-awareness*; this describes the ability to identify own emotions, *optimism* describes the ability to express own feelings, thoughts, beliefs

and the ability to defend what is right in an acceptable way. *Self-regard* involves the capacity to respect and consent to what is good and have considerations for self. *Self-actualisation* is the ability to identify one's own ability and capacity whilst *independence* entails being responsible for one's own actions and being free of emotional dependencies.

1.2.2.2 Interpersonal aspects

Interpersonal aspects have three components: Empathy, interpersonal relationships and social responsibility. According to Bar-On (1997; 2000), *Empathy* is understanding and awareness of the feelings of others. *Interpersonal relationships*; is the ability to establish and maintain mutual relationships that is usually followed by giving and receiving affection and *social responsibility* is the ability to prove cooperation, a contributing and effective member of a group that one belongs to or formed.

1.2.2.3 Adaptability

Adaptability has three components: Problem-solving, reality testing and flexibility. *Problem-solving* refers to awareness of problems and defining problems in order to generate and implement real solutions. *Reality testing* is the ability to establish and access the relationship between feelings experienced and what objectively exists and *flexibility* refers to the ability to adjust thoughts, emotions and action changing situations and conditions.

1.2.2.4 Stress Management

Stress management comprises of two aspects; Stress tolerance and impulse control. *Stress tolerance* is the ability to withstand adverse events and stressful situations without falling apart, and also refers to the ability to manage stress positively and actively. *Impulse control* is the ability to resist impulsivity and the temptation that makes one act quickly.

1.2.2.5 General Mood

General mood has two aspects; Happiness and optimism. According to Bar-On (1997; 2000), *happiness* is the ability to feel satisfied with one's own life, enjoy self and others and have fun. *Optimism* refers to positivity even in the face of adversity and to look at life on a brighter side.

1.2.3 Goleman's model of EI (Goleman 1998; 2001)

Unlike the previous models, Goleman's model focuses on competencies and skills that drive leadership performance (Goleman, 1998). According to him, humans are not born with emotional competencies but with the potential to learn these capabilities that must be worked on and can be developed to achieve outstanding performance (Goleman, 2006; Stys & Brown 2004).

Goleman's model (Figure 2) is similar to Bar-On's (2006) model, but it does not include cognitive intelligence. Goleman viewed EI as a total of social and personal competencies comprising of five components (self-awareness, self-regulation, motivation, empathy and social skill). Personal competence and social competence are discussed below.

1.2.3.1 Personal competence

Personal competence determines management of oneself and comprises of self-awareness, self-regulation and motivation. According to Goleman (1998), *self-awareness* involves the ability for an individual to identify their own feeling as it occurs. Hallmarks of this ability include openness to constructive criticism, self-confidence and self-assessment. *Self-regulation* involves the ability to control, manage and redirect emotions that could have negative impacts. Hallmarks of this ability are integrity, trustworthiness, ambiguity and willingness to accept change. *Motivation* is the ability to use emotions to achieve a goal through self-control and regulating impulses according to the situation. The hallmarks of this ability are optimism and commitment.

1.2.3.2 Social Competence

Social competence involves empathy and social skills. *Empathy* is the ability to have feelings and concerns for people and treat their situations according to their emotions and reactions. Hallmarks of empathy include the ability to generate and motivate other people. *Social skills* involve the ability to maintain rapport with people and manage relationships. Other hallmarks of social competence include good team management skills and persuasiveness. Individuals with social skills have the ability to manage relationships effectively, socially and at work and they are able to understand and control their emotions and give emphasis to the emotions of others.

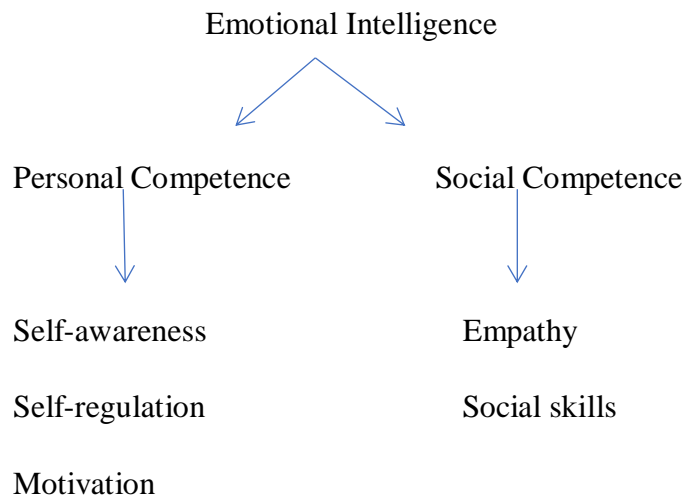


Figure 2: Goleman's (1998; 2001) emotional intelligence model

1.2.4 Comparison and critical evaluation of EI models

The EI models all begin with the awareness of the self, emotions of others and have management of these emotions of self and others in common. An individual will possess self-awareness of their emotions before they are able to perceive the emotions of others. All models agree about some key components of EI by implying that perception of emotion and regulation are important factors that determine an emotionally intelligent individual.

The models suggest a unique and complimentary perspective in understanding the importance of social outcomes for individuals with BD. The implication is (regardless of the model) that poorly developed EI, results in negative social outcomes while stronger EI results in positive social outcomes. Concomitantly, Day, Therrien, and Carroll (2005) and Slaski and Cartwright (2002) have found that EI has incremental validity for psychological outcomes, life satisfaction, loneliness, depression-proneness (Austin et al., 2005; Dawda & Hart, 2000; Palmer, Donaldson & Stough, 2002; Saklofske, Austin, & Minski, 2003), and social network size (Austin et al., 2005). However, none of the models provides evidence that improving EI skills results in improved daily functioning or better social outcomes (Klin, 2000; Tager-Flusberg et al., 2001).

The theories have measures that have been developed to test the reliability and validity of the models (see Table 1). Mayer and Salovey developed a measure EI- the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT). The MSCEIT was designed for individuals 17 years of age or older using a sample of 5,000 men and women. The MSCEIT aims to measure the components of EI, namely perception, facilitation of thought, understanding, and regulation with specific tasks. Bar-On's measure of EI; the Bar-On Emotion Quotient Inventory (EQ-i), is a self-report measure of EI designed for individuals sixteen years of age and older. The EQ-i was developed using 4000 respondents from the United States and Canada (Stys & Brown, 2004). There are several versions of the EQ-i that have been developed by Bar-On for use with different populations and in varying situations. Examples are the EQ-interview (this was designed to be completed after the self-report EQ-i), the EQ-i Short Version (a 52 item version of the original), the EQ-i:125 (a 125 item version of the original which excludes the negative impression scale), the EQ-i Youth Version (for children and adolescents 7- 15 years of age), and the EQ-360 Assessment (a multi-rater instrument used in conjunction with the regular self-report EQ-i to give a more complete assessment). In addition, the original EQ-i is available in several languages, including Spanish, French, Dutch, Danish, Swedish, Norwegian, Finnish, and Hebrew (Bar-On, 2002; Stys & Brown, 2004). The measurement tool that was developed based on Goleman's model of EI and its competencies is the Emotional Competency Inventory (ECI; Boyatzis, 1994). The ECI was co-designed as a measure of EI by Daniel Goleman, Richard Boyatzis and Hay Group to assess the emotional and social competencies that distinguish outstanding leaders. The ECI was developed based on Goleman's EI competencies as well as an earlier measure of competencies for managers, executives, and leaders (the Self-Assessment Questionnaire) EI (Boyatzis, 1994).

Table 1: Key components of the three models of EI

	Mayer and Salovey's (1997) model	Bar-On's (1997) model	Goleman's (2001) model
Model viewpoint	Ability	Mixed (emotional and social abilities)	Mixed (social and personal competencies)
Theory	EI and Cognitive intelligence are separate constructs	EI and Cognitive intelligence are equal	Emotional competencies are learned
Measures	MSCEIT	EQ-i	ECI

Note: MSCEIT- Mayer-Salovey-Caruso Emotional Intelligence Test, EQ-i- Emotion Quotient Inventory, ECI- Emotional Competency Inventory

The models also have competing viewpoints on the nature of the EI construct (Table 1). Mayer and Salovey termed EI as an ability model (Mayer & Salovey, 2006), the four branch EI model prioritised different aspects of EI with perception of emotion as the lowest level and management/regulation as the most advanced emotional ability. They have not recognised all the aspects (perception, understand, use of thoughts and regulation) of EI as having a part to play for successful EI and having a unique contribution in the prediction of human behaviour.

Goleman's model presents emotional competencies as representing the level at which an individual dominates skills based on their EI level, making the individual more effective in their work (Goleman, 2001). Goleman also defined EI components as learned abilities necessary for organisational skills and performance at work while Bar-On, Mayer and Salovey have described EI as necessary for overall performance.

Goleman's and Bar-On's models have each proposed EI as a mixed model, combining mental abilities and personality traits differing from the ability-based model of Mayer and Salovey. Goleman and Bar-On also proposed that EI has a combination of social and personal competencies (Goleman, 2001; Bar-On, 2000). These mixed models however have overlapped with different constructs such as personality, therefore broadening the EI construct. These mixed models imply that EI is evolving as research advances.

1.3 Constructs Related to EI

Empirical research has found that EI is related to a range of different constructs, e.g. personality (Mathew, Zeidner, & Roberts, 2011) and alexithymia (Taylor & Bagby, 2000). EI is also similar to some aspects of the big five personality factor model (Bar-On, 2000). These similarities were described by Goleman and Bar-On's intelligence models in section 1.2.2 and 1.2.3 of this chapter (Goleman, 2001; Bar-On, 2000). In addition, Alexithymia is inversely related to EI (Taylor & Bagby, 2000). These constructs are further discussed below.

1.3.1 EI and the big five personality factor model

The big five personality factor model proposes that personality can be factored into five dimensions: neuroticism, extraversion, openness, agreeableness and conscientiousness (Goldberg, 1992). The model proposes that every individual fall between two extremes of each aspect of personality. *Neuroticism* differentiates between emotional stability and negative emotionality. Neuroticism involves emotional instability or maladjustment, and negative emotions such as sadness, anger and fear, that interfere with an individual's ability to adapt to and control emotions (Costa & McCrae, 1990). *Extraversion* refers to an active approach to the world, such as enjoying social interactions and meeting people as opposed to a passive approach. *Openness* involves being aware about one's inner feelings and being open to experiences. *Agreeableness* measures sympathy and orientation towards others when a favour is returned. *Conscientiousness* refers to controlling ones' impulses, planning to facilitate tasks, competence and goal-directed behaviours (Hergenhahn & Olson, 1999; Stys & Brown, 2004).

According to Mathew, et al. (2002) most of the components of EI relate to either a single of the big five personality factors or combinations of them. Other researchers, such as Petride and Furnham, (2001); Sakolofske, Austin, and Minski, (2003) found correlations between EI and all the big five personality factors; however, Van der Zee, Thijs, and Schakel, (2002) did not find any relationship between EI and conscientiousness.

EI and personality have relationships that have been discussed in literature (Bar-On 2002; Brackett & Mayer, 2002; Goleman, 1997; Mayer & Salovey, 1997). Some models of EI for example Bar-On and Goleman's mixed models have most of the components and sub-components of their theories of EI as similar to the areas of the personality theory (Stys & Brown, 2004). Goleman's measure of EI (Goleman, 1997) and the emotional competence inventory (ECI) (Sala, 2002) were found to correlate significantly with three big five

personality factors, namely extraversion, openness and conscientiousness (Sala, 2002; Stys & Brown, 2004). In addition, Brackett and Mayer (2002) found significant correlations between openness and agreeableness factors and EI. Zadel (2004) however found no relationship between personality traits and EI after his study using the emotion competence inventory (Sala, 2002) and Eysenck's Personality Questionnaire (Eysenck & Eysenck, 1975). EI and the personality construct are related, in that, EI is a part of the human personality and personality provides the context in which EI operates (Mayer & Ciarrochi, 2006).

1.3.2 Alexithymia and lack of EI

Another construct that relates to EI is alexithymia. Alexithymia is not a clinically diagnosed condition (Stys & Brown, 2004); however, its features are complex mixtures of personality traits that are still present after stress or depression symptoms are reduced over time (Taylor & Bagby, 2000).

Alexithymia in Greek means no feelings or words. Alexithymia is a personality construct that is theoretically linked to EI. Alexithymia has been described as lack of ability to have a cognitive processing of emotional knowledge, implying a lack of EI (Taylor & Bagby, 2000). According to Taylor (2000), some alexithymic individuals are unable to identify and describe feelings, and unable to interpret physical symptoms of emotional excitement. They also exaggerate physical excitement and rely on external cues and signals rather than internal indicators (Taylor, 2000).

Describing EI and alexithymia indicates that they both involve attention to emotions and clarity concerning emotion in different directions. According to previous research (Bagby et al. 1994; Davies et al. 1998; Mayer et al. 1990; Schutte et al. 1998), several personality dimensions are related to EI and alexithymia. Attention to emotions is associated to extraversion while the clarity of emotions is associated with neuroticism (Coffey, Berenbaum, & Kerns, 2003).

While EI has been conceptualized as an ability model for emotions, (Mayer, Salovey, & Caruso, 2000), alexithymia is the inverse of EI. There is an assumed inverse association between EI and alexithymia, with several studies supporting this (Ghiabi & Besharat, 2011; Parker, Taylor, & Bagby, 2001; Schutte et al. 1998). There is also evidence that alexithymia relates to difficulties in discriminating among different emotional states (Bagby, Parker, Taylor & Acklin, 1993), because alexithymia involves a pattern of cognitive and behavioural features

that are related to the expression and experience of affect (Montebarocci, Surcinelli, Rossin & Baldaro, 2011). Alexithymia and EI are strongly inversely correlated, because the presence of alexithymia and its characteristics imply a low EI and people who have high alexithymia are not only unable to use emotions to guide their actions, and are also intolerant of stress (Ghiabi & Besharat, 2011), more research is needed on alexithymia in disorders of affect that are characterised with low EI (e.g. bipolar disorder). Although alexithymia and EI are inversely, but strongly overlapping constructs, alexithymia is a more narrowly defined construct as it is easily identifiable, because when an individual begins to show alexithymic traits, they show emotions that are not socially acceptable (Zenasni & Lubart, 2009). Alexithymia has also been found to be negatively associated with scores on EI measures (Parker et al., 2001).

Studies (e.g., Mayer, DiPaolo & Salovey 1990) have examined the relationship between alexithymia and several aspects of emotional processing. However, there are still controversies. Berenbaum and Prince (1994) and McDonald and Prkachin (1990) found no significant difference between alexithymic and non-alexithymic participants in their ability to recognise facial expressions of emotions and indicated that alexithymia is not associated with diminished accuracy in the interpretation of emotionally relevant information. Other researchers (Jessimer, & Markham, 1997; Lane, Sechrest, Reidel, Shapiro & Kaszniak, 2000; Mann, Wise, Trinidad, & Kohanski, 1994) found that people with alexithymia process facial expressions with decreased recognition accuracy and that it may be responsible for emotional regulation difficulties.

Furthermore, clinicians have reported that individuals with alexithymia manifest a limited capacity for empathising with the emotional states of others (Krystal, 1979; McDougall, 1989 & Taylor, 1987). According to these studies, alexithymic features are not only in psychosomatic disorders but are also present in psychiatric disorders such as bipolar disorder and major depressive disorder (Ghiabi & Besharat, 2011). Since EI and alexithymia are inversely related, it is important to research this construct in BD.

1.4 Bipolar disorder (BD)

EI is considered as a basic skill necessary for successful social interaction. It is, therefore, of significance that research has identified that people with psychiatric and affective disorders, e.g., BD have various psychosocial difficulties (Derntl, Seidal, Kryspin-Exner, Hasmann & Dobmeierl, 2009).

According to the Office for National Statistics Psychiatric Morbidity report (2001), BD is one of the most common mental health disorders among adults in the UK. It has been estimated that BD is the fifth leading cause of medical disability among individuals in the age range of 15-44 years (World Health Organization, 2001). Additionally, BD is recognised as one of the most devastating psychiatric disorders, being characterised by episodes of manic and depressive states (American Psychiatric Association, 2001).

BD is physically and psychologically draining during its two phases (manic and depressive states) (Johnson, Gruber & Eisner, 2007). Individuals with BD can also experience a euthymic phase. Individuals with euthymic BD are in a relatively stable mood state; they are neither manic/hypomanic nor depressed. However, research has found that a significant number of euthymic bipolar patients still show mild traits of psychosocial difficulties (Malhi et al., 2007) that are referred to as subsyndromal symptoms. Marangell (2004) described subsyndromal symptoms as symptoms that fail to meet the full diagnostic criteria for a mood episode between episodes. Individuals with BD have also been said to experience mixed episodes, cyclothymia and rapid cycling. Mixed episodes BD refers to the condition in which depressive, and manic symptoms are simultaneously present (McElroy et al. 1992). Cyclothymia involves recurrent hypomanic and depressive episodes that do not meet diagnostic criteria for mania and major depression, respectively (Alloy & Abramson, 2010). Rapid cycling (RC) relates to the occurrence of four or more episodes or shifts from one extreme to another within one year (Koszewska & Rybakowski, 2008). RC affects a significant proportion of individuals with BD and is related to a longer course of illness, an earlier age at onset, and increased suicidality (Carvalho et al. 2014). An annual prevalence of RC in individuals with BD is estimated to range between 5% –33.3%, while its lifetime prevalence ranges between 25.8% –43%. RC represents a transitory phenomenon rather than a stable pattern that characterizes BD (Carvalho et al. 2014).

According to the Australian Bureau of Statistics (2007), individuals with BD have a reduced capacity to function in effective employment, struggle with maintaining important and long-term interpersonal relationships and have difficulties in psychological adjustment. BD has been compared to having life altering implications to the same degree as some chronic medical illnesses like multiple sclerosis and rheumatoid arthritis, affecting employment, social relationships and family life (Robb, Cooke, Devins, Young & Joffe, 1997). In addition, Individuals with BD have been known to report difficulties in social activities (Morriss, et al., 2007) and in social skills performance (Goldstein, Miklowitz & Mullen, 2006). They have also

reported instability in their marital and romantic relationships (Blairy et al., 2004; Tsai et al., 1999). In previous research measuring psychosocial functioning (e.g quality of life), participants with BD have consistently lower scores (Cramer et al., 2010; Freeman et al., 2009; Gutiérrez-Rojas et al., 2008; Saarni et al., 2010; Srivastava et al., 2010) compared to the controls.

Furthermore, individuals with BD have been found to be at a higher risk of suicide compared to the general population (Judd & Akiskal, 2003). According to Simpson and Jamison (1999), individuals with BD have a lifetime rate of a minimum of one suicide attempt and higher rates of comorbid anxiety disorders and affective relapses (Schaffer, Caimey, Cheung, Veldhuizen & Levitt, 2006). During the phases (depression and mania) of BD, individuals experience various symptoms that impact their daily lives, the phases are discussed in detail below in section 1.4.1 and 1.4.2.

1.4.1 Depression in individuals with BD

According to National Institute for Health and Care Excellence (NICE, 2015), individuals with BD experience more depressive symptoms than manic symptoms, they spend a significant amount of time experiencing syndromal or sub-syndromal depressive symptoms. Hirschfeld, (2001), reported that sub-syndromal depressive symptoms are experienced frequently in individuals with BD and can interfere with both social and occupational aspects of the person's life. More research is needed for interventions to manage these low-grade, chronic depressive symptoms as they can be a substantial treatment challenge.

In a longitudinal study by Judd et al. (2002) on 146 patients. The weekly mood ratings of individuals with BD found the prevalence of depressive symptoms than manic symptoms, participants spent 32% of the time in 12 years with symptoms of depression. In another 1-year study of 258 individuals with BD by the Stanley Foundation Bipolar Network using the National Institute for Mental Health (NIMH) Life Chart Method (LCM), the participants with BD spent 33% of the time experiencing depressive symptoms as well as a large proportion of their participants with BD (> 60%) suffered four or more mood episodes in a year (Post, et al. 2003).

In individuals with depressed BD, research have observed reports of individuals experiencing profound loss of interest in activities, as well as symptoms such as hypersomnia, insomnia, tiredness, weight loss or gain, psychomotor retardation, melancholic features such

as feelings of worthlessness and marked anhedonia, excessive guilt and suicidal thoughts or actions (Mitchell & Mahli, 2004). In addition, Strober and Carlson (1982) found that individuals experiencing depressed BD may be more likely to show some psychotic features.

According to the NICE (2015), individuals with BD experiencing depression are at greater risk of suicide with approximately 20% attempting suicide during the course of their illness (Rihmer & Kiss, 2002). In addition, according to Baldessarini, Pompili and Tondo, (2006), approximately 0.4% of individuals with BD annually die by suicide. The standardised mortality ratio (SMR) for suicide in BD is estimated to be 15% for men and 22.4% for women (Osby et al., 2001).

1.4.2 Mania in individuals with BD

Individuals with BD experience the hypomanic or manic phase, that is usually characterised by increased self - confidence or grandiosity, increased drive, decreased attention span and decreased need for sleep, which ultimately can culminate in psychosis and exhaustion if left untreated (Rihmer & Kiss, 2002).

According to Post et al. (2003), mania is much less common than depression in individuals with BD. However, the extreme behaviours associated with it can be devastating and individuals experiencing mania can often have severe symptoms that lead to hospitalisation to reduce the risk of harm to themselves or others (NICE, 2015). According to Cassidy and Carroll (2001), individuals with BD experiencing the manic phase experience grandiosity that may manifest as irritability. Additionally, they may experience dysphoric mood manifested as exaggerated confidence and disinhibition, examples include restlessness and higher than normal energy level (Cassidy et al, 1998). Individuals experiencing severe forms of mania, have been known to experience visual and auditory hallucinations (NICE, 2015). According to Angst (1998), they experience a racing mind with flight of ideas that can make speech incoherent and impossible to understand, hence making their ideas difficult to piece together into a coherent whole. They have often reported increased productivity and creativity during the early stages of mania which may feel satisfying and rewarding. However, as the episode worsens, individuals experiencing mania begin to have severe distractibility, restlessness, and difficulty concentrating can render the completion of tasks everyday tasks impossible (Angst, Gamma, Benazzi, et al., 2003).

Individuals with BD experiencing mania have reported increase in appetite (Post et al., 2003), a libido rise with increased interest in sexual activity that have often led to risky behaviours such as impulse sexual practices (Cassidy & Carroll, 2001). In severe cases individuals with BD experiencing grandiose delusions of mania and mood-congruent hallucinations have reported hearing the voice of God sending messages of special purpose (Kessing, Agerbo, & Mortensen 2004) which have had negative consequences on their behaviour. In addition, they have been known to develop persecutory delusions where they are preoccupied with the idea that their plans are being ruined and their power is taken away (Kessing et al, 2004). In conclusion, an individual experiencing the manic phase of BD is unaware of their irregular behaviour, hence, they do not consider themselves to need treatment. The individual might perceive clinical and psychological interventions as attempts to challenge their power and self-esteem. This could provoke or worsen their disgust and irritability (NICE, 2015).

Taken together, BD symptoms can have a huge impact on the psychosocial functioning of an individual diagnosed with BD. The emerging evidence of the presence of psychosocial deficits in individuals with BD, demonstrates the need for a deeper understanding of these deficits and the emotional processes that are associated with the disorder.

1.4.3 Psychological theories of BD

Three main psychological theories of BD are discussed below.

1.4.3.1 Psychodynamic theory (Freud, 1917)

The psychodynamic theory assumes that the dynamics of mania and depression are linked through one common pathway. According to Freud (1917), depression is a manifestation of the losses (the loss of self-esteem and the sense of worthlessness.) Therefore, mania serves as a defence against the feelings of depression. The psychodynamic theory explains BD by how the id, ego, and superego interact with each other (Mendelson, 1990). Depression is suggested to result from aggression from the id turned in against the self, resulting in the superego dominating the ego. Since the superego is made up of a person's ego-ideal and conscience, the result is that the ego experiences extreme feelings of guilt and inadequacy resulting in depression (McLeod, 2015). The ego tries to take control away from the superego and in doing so overreacts and the individual enters the manic phase (Bemporad et al.1922). The manic

phase would occur as the ego tries to defend itself against the superego. The cycle is repeated, with the superego and the ego alternately taking control. This might explain the self-esteem and grandiose delusions of an individual experiencing mania. To protect themselves from the feelings of worthlessness, the ego invents a fantasy wherein the person is more successful or powerful than they really are (Mendelson, 1990).

1.4.3.2 Cognitive theory of BD (Beck, 1979)

Beck's (1979) cognitive theory suggests that depression occurs because of patterns of negative schemata. These schemas are formed on early experiences and are activated by trigger events that accentuate mood shifts. Individuals who are depressed become more negative on how they perceive themselves, others, and the world. Beck (1979) suggested in his cognitive theory that mania is a mirror image of depression, as determined by a hyper positive triad of self, others, and the world. Commensurate with Beck's account of mania and depression, individuals with BD have been found to show evidence of information processing bias (Murphy et al., 1999), suggesting that schemata in BD are bidirectional. To support this, research has found lower levels of self-esteem (Goldberg, Wenzel, Welker, Steer & Beck, 2005), poorer problem-solving skills, and higher levels of dysfunctional attitudes (Scott et al. 2000) in individuals with depressed BD. In addition, Murphy et al. (1999) found that individuals with BD experiencing mania showed impaired memory for depression relevant material. Currently manic individuals with BD were also found by Ashworth, Blackburn and McPherson (1982) to have elevated self-esteem and hyper positive beliefs of themselves.

1.4.3.3 The Behavioural Approach System (BAS) dysregulation theory (Depue & Iacono, 1989)

According to Depue and Iacono (1989), the BAS dysregulation theory is a system that regulates approach motivation and goal-directed behaviour to attain rewards, which are reflected in bipolar symptoms in individuals with BD. The BAS dysregulation theory emphasises the role that sensitivity to rewards and goals, plays in BD by proposing that BAS activation relevant events such as goal striving and reward incentives should be associated with an increase in manic symptoms (Depue, 1985). An evidence that supports this is the research of Johnson et al. (2000) on individuals with BD, that found the increase of manic symptoms to be triggered by goal striving and attainment events as a response to the elevation of BAS in response to cues of reward. In contrast, Allen, Iacono, Depue, and Arbisi (1998) found that in

response to life events such as failures and losses, there is an excessive decrease in BAS, consequently resulting in depressive symptoms (e.g. decreased energy, decreased goal-directed activity, hopelessness and sadness) in individuals with BD experiencing the depressive phase (Alloy & Abramson, 2010; Depue & Iacono, 1989).

1.4.3.4 Comparison and critical evaluation of the psychological theories of BD

The psychological theories of BD are descriptive and all focus on different predictors of bipolar symptoms. Emerging theories of BD have been criticised for having a lack of an explicit theoretical base e.g. Interpersonal and Social Rhythm Therapy (Power, 2005). Research needs to give more focus to BD and its own theoretical framework as BD has often been abandoned (Power & Schmidt, 2004), hence, there are no specifically developed explanations for BD. Recent explanations have either been adapted to BD or are based on similar conceptual framework as the Cognitive theory of Beck. However, none of the theories recognise critical factors that have been found by researchers to be predictors of manic and depressive symptoms in BD, such as lifestyle and sleep irregularity (Wehr, Sack, & Rosenthal, 1987), patterns of recovery and relapse (Power, 2005), lack of social support from family and environment (Miklowitz, Goldstein, Neuchterlein, Snyder, & Mintz, 1988) and increased sensitivity with each episode (Post, 1992).

Given that key features of depression and mania include irritability, dysphoria and anxiety, none of these theories have discussed possible predictors of these symptoms. In addition, theories of BD need to integrate the variability in the stress responses of individuals with BD to different situations, since EI involves being able to process emotions in different circumstances, including when stressed. In other words, some individuals with BD might respond to stress by developing depressive symptoms, and others with the development of manic responses. Despite being one of the oldest and highly influential model, the psychoanalytic theory is difficult to test scientifically (McLeod, 2015). In addition, psychoanalytic theory places emphasis on unconscious and early childhood experience as being responsible for BD symptoms, this could limit clinicians and psychotherapists to overlook additional aspects of the individuals' life that could be a contributory factor.

The cognitive psychological theory of BD is monodirectional in its focus on cognition. It is important to take into account that individuals with BD display responses to environmental triggers and physiological activation (Power, 2005). Furthermore, there is need to consider the specific effects of significant life events and environmental stressors on individuals' emotion

regulation, (Lam et al., 1999), particularly the fact that some life events appear to be able to predict depressive and manic symptoms, while others do not (Johnson et al., 1999). Therefore, a working theory of BD needs to encompass biology, individual beliefs and behavioural reactions, interpersonal functioning, environmental triggers and life events, and the individual's idiosyncratic conceptualisation of these events. An individual who is successful in all these emotional situations may be considered an emotionally intelligent individual.

1.5 EI and Bipolar disorder

Although researchers have long documented deficits in some aspects of EI in individuals with BD, there is limited research in this subject area. However, the recent research of Chapela, Quintero, Félix-Alcántara, Morales, Javier and Jorge (2016) found lack of EI in their participants with BD. In addition, overall EI capabilities have not been measured in those with BD using the WLEIS about EI abilities in individuals with BD. Furthermore, studies of patients with BD have reported that individuals with BD have various difficulties with social functioning (Derntl, et al., 2009; Getz, Shear & Strakowski, 2003). For example, Tsai, Lee, and Chen (1999) found that adults with BD have difficulties in coping with their marital relationships and that they tend to experience maladjustment in the workplace, often leading to alternative occupations. Fulford (2011) reported employment difficulties in individuals with BD that may be attributed to lapses in their education due to their debilitating episodes. Based on EI aspects as described by Mayer and Salovey's (1997) EI model (perception and understanding, use of emotions to facilitate thoughts and regulation of emotion). Research on these aspects in individuals with BD are discussed below.

1.5.1 Perception and understanding of emotion in individuals with BD

Emotional perception is assumed to be the first step in responding to one's own and other people's emotions in an adaptive way (Salovey & Grewal, 2005). The ability to perceive and recognise emotional expression has been considered to be an important skill for social interaction and has been regularly shown to be impaired in patients with BD. Recently, emotion perception in psychiatric disorders has received increased focus on the severity of impairment, and how it relates to interpersonal interactions and social functioning (Fulford, 2011). Literature examining facial affect recognition deficits has focused more on other psychiatric disorders such as schizophrenia, where emotion impairment has been consistently found, with very few studies examining individuals with BD (Healy et al., 2016). Earlier studies that

compared schizophrenia with healthy control groups found emotion recognition performance in depression (Archer et al., 1994; Walker et al., 1984) and emotion recognition performance similar to control groups (Gur et al., 1992). Addington and Addington (1998) however, found individuals with BD to perform significantly better than individuals with schizophrenia in recognising emotion and perception tasks, whereas Bellack et al. (1996) for example found no significant difference when comparing individuals with schizophrenia and BD. A possible explanation for this is that, perhaps individuals with BD have good EI to start with, but then become over-sensitive to others' emotions because being too empathetic could be counter-productive.

Whilst Kohler, Hoffman, Eastman, Healey and Moberg (2011) reported moderate deficits in recognising all facial emotions in individuals with BD, other studies have not (Fulford, et al., 2014; Lee et al. 2013). Similarly, some researchers (Addington & Addington, 1998; Bozikas et al. 2006a; Derntl et al. 2012; Getz et al. 2003; Rich, Grimley, Schmajuk, Blair & Leibenluft, 2008) have reported a general deficit in emotion recognition in individuals with BD. Findings from some studies (Summers, Papadopoulou, Bruno, Cipolotti & Ron, 2006) are not in agreement and report instead that emotion recognition deficits in individuals with BD could be restricted to specific emotions.

Few studies have examined potential differences on how the different phases of BD (manic and depressive) affects emotion perception as well as individuals with euthymic and remitted BD (Kohler et al. 2011). However, Harmer et al. (2002), found a negative correlation between depressive symptoms and the sensitivity in recognising happiness, while Gray et al. (2006) found a positive relationship between depressive symptoms and recognising sadness in depressive individuals. Other studies have supported this, according to Schaefer et al. (2010) depression is related to impairments in judging facial expressions, which is an important part of social interaction. These impairments in recognising facial expressions may explain the diminished psychosocial functioning that is usually experienced as depressive symptoms become severe (Judd et al., 2005, 2000). Additionally, Hoernagl (2011) also found that individuals in depressive states exhibit a common deficit in perception of emotion as a result of the underlying negative mood at this state. Depressive individuals also exhibit a negative bias to affective perception and have impairments in recognising positive emotions (Gray et al. 2006). In their meta-analysis, Sweeney et al. (1986) found depression to be associated with internal causes of negative events. Equally, for positive events, depression has associations with external, unstable, and specific causes. Based on the theory of Mayer and Salovey (1999)

that perception of emotion is an integral part of becoming an emotionally intelligent individual, the empirical evidence described suggests emotional perception difficulties in individuals with BD.

Lembke and Ketter (2002) found patients who were manic to recognise positive facial expressions without any difficulties, perhaps because of their familiarity with happiness as a result of their internal mood state. According to these researchers, manic patients have impairments in recognising negative emotions which may manifest as inappropriate behaviour. In their study, Harmer, Grayson and Goodwin, (2002) also found a negative relationship between manic symptoms and the recognition of negative emotions.

Yurgelun-Todd et al. (2000) reported limited accuracy and responses in recognition of fear and disgust among persons with remitted BD. In addition, Hofer et al. (2010) also reported individuals with BD to have facial emotion recognition deficits. Lee et al. (2013) however, have not confirmed such deficits with even some evidence of heightened recognition for certain emotions during remission of BD. This evidence suggests that there may be substantial variability among individuals with BD in facial affect recognition (Fulford et al. 2014) during the different phases of their BD. In summary, some researchers have documented deficits in emotion perception and processing among individuals with BD while others have not. These deficits, however, are more evident during phases of BD, with inconsistent results during euthymia and those in remission.

Differences in research has been linked to various causes, such as sample size and euthymic participants still experiencing low-grade symptoms of the manic and depressive phases (subsyndromal symptoms) that cannot be clinically proved (Hoertnagl, 2011). Similarly, medication has also been found to impair facial emotion recognition abilities (Harmer et al. 2004; Lawrence et al. 2002). This thesis here then considers whether emotion processing ability could help explain difficulties in emotion perception and possible emotion perception differences in BD.

1.5.2 Use of emotion to facilitate thoughts and performance in individuals with BD

The use of emotion to facilitate thought processes is an aspect of EI that entails how emotions are used and how it impacts on cognition to assist in thought processes or problem-solving (Mayer et al., 2000a). Emotions play a major role in human lives. They provide us with vital information for making sense of our inner experiences and navigating our social

environment (Abe, 2011). Thus, individuals who are receptive to internal and external cues of emotions can also engage in sophisticated information processing about their own, as well as other people's emotional experiences. They can use this information to guide their thoughts and are more likely to exhibit adaptive functioning in both intrapersonal and interpersonal contexts (Mayer, Roberts, & Barsade, 2008). Thus, emotional competencies are imperative to maintain social interactions because emotions help to communicate and convey information about people's thoughts, intents and management of their social encounters (Keltner & Haidt, 2001).

People tend to use their thinking about emotion for adaptive and/or maladaptive purposes. An example of using thoughts in an adaptive way is "I control my emotions by changing the way I think about the situation I'm in" (Emotion Regulation Questionnaire. Measurement Instrument Database for the Social Science. Retrieved from www.midss.ie Gross & John, 2003), and a maladaptive way "I speak about emotionally difficult events in general terms instead of in detail" (Sense of Emotion Control Questionnaire, Sundin, et al. unpublished manuscript). According to Gruber, Purcell, Perna and Mikels (2013), and Johnson, McKenzie and McMurrich (2008), individuals with BD have been found to be associated with a tendency to engage in ineffective or maladaptive emotion regulation strategies. Many studies have found that individuals with BD do not use adaptive strategies (Gruber et al., 2013). However, Gruber (2012) found that individuals with BD reported a greater use of adaptive strategies (i.e., cognitive reappraisal) and more frequently endorsed regulation strategies across positive, negative, and even neutral stimuli than the controls. In their study of cognitive emotion regulation in individuals with BD and healthy controls, Fletcher, Parker, Paterson and McClure (2014) reported more frequent use of maladaptive coping strategies in response to negative life events in those with BD, this finding identifies with Becks cognitive theory of BD as discussed in section 1.4.3.2 of this chapter that following negative events, individuals who are depressed become more negative on how they perceive themselves, others, and the world. Johnson et al., (2008), Gruber et al. (2011) and Green et al. (2011) reported that individuals with BD have a greater tendency to ruminate about negative affect (neuroticism), while Gruber et al. (2012) reported a tendency to engage in suppression (inhibiting emotion-expressive behaviour). This evidence supports the evidence that EI in individuals with BD are related to personality the construct, for example, Koszewska and Rybakowski (2008), found neuroticism to be significantly high in individuals with BD that are experiencing mixed episodes.

Furthermore, individuals experiencing active BD phases as well as those in remission have reported positive emotion in anticipation of pleasant stimuli in their day to day lives (Johnson et al., 2007). Similarly, Gruber, Eidelman, Johnson, Smith, and Harvey (2011) found that individuals with BD exhibit a self-reported tendency to think about positive feelings and thoughts for a prolonged duration (positive rumination). They do not report many negative emotions or show physiological correlates for them (Gruber et al., 2013). Farmer et al. (2006) also indicated that people with BD when compared to controls usually engage themselves in continuous thoughts about pleasant affective experiences, positive feelings of happiness and positive self-thinking.

Some studies on cognitive reappraisal have focused on its importance in influencing emotional responses. In their studies, Gross (1998) and Ochsner and Gross (2005) showed that cognitive reappraisal is associated with reduced negative emotional understanding and performance. This self-reported tendency to use cognitive reappraisal in daily living is further related to decreased negative emotion and increased well-being (Gross & John, 2003; Daros et al. 2014).

1.5.3 Emotion regulation in individuals with BD

Individuals with BD are known to have emotional regulation deficits. However, the precise nature of the emotional regulatory difficulties is unclear (Gruber, Hay & Gross, 2014). Regulation of emotion is an important part of EI (Gross, 2002). According to Mayer and Salovey's (1997) four branch model of EI, emotional regulation is the most complex part of EI, since the emotion regulation component of EI builds on its other components, (e.g. the perception and understanding of emotion, the use of emotion to facilitate thoughts). The ability to regulate the emotion of oneself and others is built by the competencies of the other components of EI (perception and understanding and use of emotion to facilitate thoughts and reasoning) (Mayer & Salovey, 1997).

During regulation of emotion, an individual may increase, decrease or maintain their positive or negative emotions (Koole, 2009). In a few recent studies (Gruber et al., 2014; Hay, Sheppes, Gross, & Gruber, 2015), individuals with BD have been found to be able to regulate their emotions in a similar way to people in the general population; however, they are less able to engage in effective emotion regulation on their own. This implies that people with BD can

regulate emotions in a similar manner as people in the general population when they are prompted with cues, but they are unable to regulate their emotions when they have no emotional cues in their daily life. This suggests that individuals with BD without emotional regulatory cues implementing emotion regulation strategies might not have emotion regulatory success (Gross, 1998; Gruber et al. 2014). As with the psychoanalytic theory of BD (Freud, 1917), the repeated cycle of the superego and the ego alternately taking control when an individual with BD experiences manic and depressive symptoms, might suggest emotional regulation difficulties.

According to Gyurak, Gross and Etkin (2011), some emotion regulation processes are implicit, automatic and are performed without any consciousness or effort whereas others are explicit and are exerted consciously and with effort. Strategies that are performed consciously and with effort can be subdivided into behavioural emotion regulation strategies (e.g. situation selection, expressive suppression) and cognitive emotion regulation strategies (e.g. cognitive re-appraisal rumination). Emotion regulation strategies can be adaptive and maladaptive. It is widely assumed that both the presence of maladaptive strategies and the absence of adaptive strategies would put an individual at an increased risk for mental distress and psychosocial difficulties (Aldao et al. 2014; Aldao et al. 2010; Gross & Jazaieri, 2014; Kring & Sloan, 2009), indicating a lack of EI. According to Gruber, et al. (2014), cognitive reappraisal is an adaptive cognitive emotion regulation strategy for negative and positive emotions that has been found in healthy adults and individuals with BD. However, only a few studies to date have examined if cognitive reappraisal is an effective emotion regulation strategy in individuals with BD. To adapt cognitive regulation of emotion, cognitive strategies have to be employed to enhance, retain or reduce the physiological and behavioural components of emotional response (Garfenski, Kraaij, & Spinhoven, 2001; Green et al. 2011), due to the limited research on cognitive emotion regulation strategy in individuals with BD, it cannot be ascertained if individuals with BD tend to adopt this strategy to regulate their emotions.

Research on adaptive and maladaptive emotion regulation strategies have been inconclusive. Hay et al. (2015) suggested that although cognitive reappraisal, for example, may be adaptive in some contexts (e.g., low-intensity negative contexts), it is also important to be able to utilize other context appropriate regulation strategies, such as distraction. However, Bonanno, Papa, Lalande, Westphal, and Coifman, (2004) stated that emotional flexibility is essential for adaptive and maladaptive regulation than the specific strategy chosen. Scott and Pope (2003) found BD patients experiencing hypomanic symptoms with negative self-esteem

to be significantly more likely to experience an affective relapse while using maladaptive emotional regulation strategies (rumination and behavioural inhibition have been found to be related to low self-esteem). This can lead to cognitive distortions predicting the symptoms of BD (Van der Gucht et al., 2009). However, Mitchell et al. (2004) found individuals with BD to have a tendency of seeing the world as a threatening place and are highly self-conscious, insecure, low in self-esteem and tend to worry in their social environment. These findings suggest the possibility that individuals with BD might be failing to make adaptive choices as to how to regulate their emotions despite having some capacity to regulate. Additionally, research in healthy participants has provided evidence into the role of emotion regulation choice in understanding the potential factors that may explain why individuals with BD exhibit difficulty regulating emotions, despite having an intact capacity to regulate. Sheppes et al. (2011, 2014) found healthy participants to flexibly switch their choice of regulating emotions from preferring reappraisal under low negative situations and positive intensity situations to preferring distraction under high negative and positive intensity situations. On the contrary, individuals with BD would require prompts to make this choice in the same situation (Gruber et al. 2014).

Poor emotional regulation has also been reported to affect psychosocial functioning in individuals with BD by having an effect on depressive symptoms that causes psychosocial impairment. Johnson et al. (2000) found depression to be often reported as a result of disturbed self-esteem in individuals with BD because of negative perceptions of their impressions of other people's evaluation. However, Van Rheen and Rossell (2013a) argue that this emotional behaviour and diminished emotional regulation are attributed to negative self-evaluations. Furthermore, neuroimaging findings have also provided further evidence of emotion regulation difficulties in individuals with BD, finding unusually reduced neural activity in the mediodorsal prefrontal cortex left and orbitofrontal cortex during automatic emotion regulation tasks (Hay et al., 2015; Phillips, Ladouceur, & Drevets, 2008).

Findings about regulation of positive and negative emotions in individuals with BD have not been conclusive. Ruggero and Johnson (2006) found no differences between people with BD and healthy controls in their behavioural identity of negative failure feedback, and negative photos (Sutton & Johnson, 2002). According to Gruber et al. (2014), individuals with BD experiencing mania have been associated with more positive emotion experience when responding to positive stimuli, for example, watching emotionally stimulating movies or looking at photographs. In addition, individuals with BD demonstrate a self-reported tendency

to dwell on positive feelings and thoughts for prolonged duration (positive rumination) (Gruber, 2012). They do not report many negative emotions or unveil physiological correlates of it. The BAS dysregulation theory emphasises the role that sensitivity to rewards and goals plays in BD by proposing that BAS activation relevant events such goal striving and reward incentives, this suggests an elevation of BAS when these individuals are exposed to positive stimuli described above.

Persad and Polivy (1993) found depressed patients to react with avoidance and heightened negative affect to emotional cues from others. Despite this, individuals with BD are described as having heightened positive emotional reactivity and difficulty with regulation of positive emotions (Gruber 2011a, 2011b). According to Fletcher et al. (2013), a possible explanation for individuals who show atypical patterns of emotional reactivity especially for positive emotions is that they are unable to regulate emotions in the same way as individuals in the general population and they possess an essential deficit in their cognitive ability to decrease emotion intensity. Taken together, previous research and theory has not been able to conclude whether individuals with BD exhibit increased adaptive or maladaptive emotion regulation strategies (Gruber, Purcell, Perna & Mikels, 2013). However, some researchers (Johnson et al. 2009; Meyer et al. 2001) have argued that maladaptive emotional control responses are common in phases of BD, while Goldstein et al. (2006) reported a reduction of social skills performance in a group of adolescent participants with euthymic BD in the absence of any observable deficit in social skills, Hoertnagl et al. (2011) indicated that patients with depressed BD experiences of emotion is more intense than that of controls and correlates with subjective psychosocial function.

Regulation and management of emotion are important factors in initiating social relationships, providing emotional support for others and managing conflicts (Yip & Martin, 2006). Adopting maladaptive emotional regulation strategies in individuals with BD, leads to a high risk of having strained emotional and social relationships which can then lead to a reduction in life satisfaction (Gross, 2003), experience of depressive symptoms (Row & Morris, 2012) and impacting their subjective quality of life (Dias et al. 2008).

Although research has reported emotional perception, measured by face identification tasks (Fulford, Peckham, Johnson & Johnson, 2014; Lembke & Ketter, 2002; Summers et al., 2006) and neurocognitive differences in patients diagnosed with BD (Van Rheenen & Rossell, 2013a; Yurgelun-Todd, et al. 2000), emotional regulation focusing on emotional regulation

strategies (Garnefski & Krajj, 2007; Gross & John, 2003; Wolkenstein, Zwick, Hautzinger & Joormann, 2014), there is little research reported on the EI of individuals with BD (Derntl, Seidel, Schneider & Habel, 2012). More research is needed to understand the emotion regulation aspect of EI and the EI construct as a whole in individuals with BD, in particular as this knowledge can provide guidance for the further and appropriate treatment as well as reduction of BD symptoms.

1.6 EI in men and women

Studies have presented contradictory evidence on gender differences and EI. Some researchers have found women to be more emotionally intelligent than men, and some studies have found no significant difference between genders. The discrepancies in gender differences could be due to the choice of measurement, for example, Brackett and Mayer (2003)'s result found that the females scored higher than men on EI when the MSCEIT which is an ability performance measure. However, when a self – report measure was used, like the Bar-On's EQ-i and the Self-Report Emotional Intelligence Test (SREIT), no gender difference was found. This could be that these differences may exist if EI is defined only as a cognitive activity rather than a combination of all. It could also mean the existence of gender differences, but the men could overestimate their ability in self-report measures (Stys & Brown 2004). Mandell and Pherwani, (2003); Trobst, Collins, and Embree, (1994); Mayer and Geher (1996); Mayer et al. (1999), found women scored higher on EI measures than men. Goleman (1998) asserted that men and women have different strengths and weaknesses in different areas of EI, but their overall level of EI are the same.

Research on gender differences in EI for other psychiatric disorders also has to be undertaken; to the best of our knowledge very little research on this subject has been conducted on individuals with BD. Thus, studies on emotion that compared the general population with patients with other psychiatric disorders, e.g. schizophrenia, found better performance in women (Bozikas, et al. 2006a; Scholten, Aleman, Montagne & Kahn, 2005). Scott et al. (2014) also reported poorer functioning in female adolescents and young adults with emerging mood disorders (Unipolar and BD). More research is needed to determine if gender difference exists in EI, particularly in individuals with BD.

1.7 The importance of researching EI in individuals with BD

EI in individuals with BD has been left relatively unexplored. EI in individuals with BD has mostly been researched alongside other psychiatric disorders, e.g., schizophrenia and unipolar disorder (Becerra et al. 2013; Daros, Ruocco, Reilly, Harris & Sweeney 2014; Tabak, et al. 2015). While schizophrenic patients for example, demonstrate normal emotional responses to evocative stimuli (Kring & Elis, 2013), individuals with BD have been found to demonstrate positive emotion during emotion-eliciting tasks (Tabak et al., 2015; Gruber, 2011). According to Becerra et al. (2013), when compared to patients with unipolar disorder, individuals with BD have a better ability to accept and understand emotions. These pieces of research have showed differences in emotional capacity between BD and other psychiatric disorders, however, BD had been mostly explored with these disorders for result comparison. Since BD is a chronic condition with a high relapse rate, morbidity and psychosocial impairment that often persist even after medical treatment (Reinares, Sanchez-Moreno & Fountoulakis, 2014), therefore highlighting the need for psychosocial treatment, it is important that BD is researched more frequently as a separate construct rather than its inclusion with other psychiatric disorders and as a psychiatric control group in research.

BD has been found to have both physical and financial implications on those that have the disorder (Catala-Lopez, Genova-Maleras, Vieta & Tabares-Seisdedos, 2013; Scott et al. 2009), this in turn affects the emotional wellbeing of the individuals from emotional exhaustion that might result. Research is needed for the identification and implementation of effective and affordable strategies in the course to reduce BD symptoms.

Furthermore, BD has been widely perceived as a biologically determined disorder with most treatments focusing on the administration of medication such as mood stabilizers and lithium (Scott & Colom, 2005). It has been assumed that psychological treatments have little effect on individuals with BD, however, efficacy studies have provided increasing evidence that individuals with BD can benefit from psychosocial interventions (Sensky, et al. 2000) and adjunctive psychological therapies (Scott, Colom & Vieta, 2007). Thus, this thesis contributes to research by understanding the emotional processes of individuals with BD and this understanding will improve psychosocial intervention treatments.

1.8 Conclusion

Patients with BD are characterised by severe psychosocial impairments. Importantly, there is a growing body of research indicating a contribution of EI to psychosocial adjustment at the different phases of the disorder including those in remission. However, there is consensus amongst various researchers that clinical status and psychosocial status are separate constructs (Bowie et al. 2010; Tabarés-Seisdedos et al. 2008; Torres et al. 2011). This could be as a result of different subjective experiences that are associated with the different phases of BD. The inconsistencies in the literature have been linked to methods of investigation and sample size reference. This thesis aims to contribute to the subject area and to fill the gap that has been identified by researching EI, emotional perception and understanding, emotion regulation and alexithymia in individuals with BD.

1.9 Aims of the research

To further examine the discrepancies that were discussed in the above literature review, this thesis is investigating EI in individuals with BD with the following objectives:

- 1) To investigate if there are differences between individuals with BD and individuals in the general population (controls) in terms of their EI.
- 2) To investigate if there is
 - a) A difference in abilities to understand and make sense of positive emotions and negative emotions (respectively) in individuals with BD when compared with the general population,
 - b) A relationship between EI and alexithymia in individuals with BD.
- 3) To investigate possible gender differences in EI and alexithymia, within and between individuals with BD and the individuals in the general population (controls).

These aims will be explored with three methods of data collection, namely a questionnaire based quantitative study, an experimental study and a qualitative study.

Following this chapter is the research methodology chapter that discusses the methods employed in this thesis.

2. Research Methodology

2.1 Introduction

This chapter describes the methods used by this PhD research to address the aims stated in the previous chapter (Chapter 1, section 1.9). A mixed method approach was used in this research to gain a more complete understanding of the research questions that this study was aimed to answer. Mixed methods approach is not intended in this thesis to replace either the questionnaire based quantitative, experiment or qualitative studies but rather for triangulation (Johnson & Onwuegbuzie, 2004), i.e. to corroborate the results of the findings from each study and facilitation, and to fill in the gaps that have been left by each method of investigation. The methods of investigation used are; a quantitative questionnaire-based study (see chapter 3), an experimental study (see chapter 4) and a qualitative study (see chapter 5). The production and integration of different types of data from all studies aims to generate insights into the aims of the thesis, resulting in enriched understanding of the research topic and the different aspects of EI (perception, understanding, use of emotion and regulation). The investigative methods used in this research are discussed.

2.2 Quantitative study

A quantitative research is an empirical research where data are collected and analysed in the form of numbers (Punch, 1998). Burns (2000) describes the strengths of a quantitative study as an empirical research that is precise, can produce causality statements using controlled experiments and is replicable. However, Blaxter et al. (1996) is not in agreement, arguing that a quantitative research method does not take people's ability to interpret their experiences as well as giving their individual meanings into account. They also argued that a quantitative research is not reliable in all situations because it leads to the assumption that facts are true and can be generalised to every individual all the time. These different viewpoints in literature have prompted most recent research to adopt a mixed method of investigation. The questionnaire-based quantitative and experiment are described below.

2.2.1 Investigation 1: A questionnaire-based case-controlled quantitative Study

The questionnaire-based quantitative study measured EI, alexithymia and emotion regulation with these measures; The Wong and Law EI Scale (WLEIS; Wong & Law, 2002), Sense of Emotional Control Questionnaire (SEC; Sundin et al. unpublished manuscript) and Toronto Alexithymia Scale (TAS-20; Bagby, et al., 1994; Bagby, et al., 1994). Participant information and measures used in the quantitative study are described below.

2.2.1.1 Participants

Participants ($N=96$) in the study consisted of individuals with BD ($n=44$) and a control group of people from the general population ($n=52$) as controls (see Table 2). The descriptive of all participants that participated in this study are presented in table 2. The inclusion criteria for BD participants in this study included individuals who belong to a support group or who were undergoing a form of intervention, or treatment for BD. Inclusion criteria for the control group were healthy adults with no history of psychiatric or neurological illness or substance abuse. All participants had a minimum of a secondary education (see Table 2), it was therefore established that they had a satisfactory fluency in English to complete all measures and were between ages 18- 72 ($M=37.8$, $SD= 13.9$). For participant recruitment of the BD group, contacts were established with various support groups across the UK, including Bipolar UK, Bipolar Scotland, Depression UK and British Association of Counselling and Psychotherapy (BACP). As part of the process, the author attended BD support group meetings across the country (Neath, Chesterfield, Glasgow, London, Oxford, Belfast, Birmingham and Hereford) to distribute the questionnaires and answer questions that participants had regarding participating and about the research. Participants were also recruited from the general population for the control group by posting research information (a recruitment leaflet-see Appendix J) through letterboxes. Members of the general population that responded to the advert through the recruitment leaflets participated in the study. Additional members of the general population were recruited by visiting local libraries and local churches in Nottingham and Birmingham. All participants were given an information sheet about the research, and a consent form to indicate their willingness to participating in the research (see Appendix A). A debrief (see Appendix I) was given to all participants reminding them of their withdrawal rights.

The College Research Ethics Committee for Business, Law and Social Sciences at Nottingham Trent University granted ethical approval for this study (see Appendix G).

Table 2: Participants characteristics

<i>N</i> =96	BD (<i>n</i> =44)	Control (<i>n</i> =52)
Age minimum (years)	21	18
Age maximum (years)	64	76
Age mean (SD)	42.66 (11.58)	33.75 (11.58)
Sex - male/female (<i>n</i>)	22/22	27/25
Ethnicity		
White British	29	22
White (Other)	3	4
Black African / British	4	8
Black Caribbean / British	3	-
Asian / British	3	8
Other	5	7
Education		
Secondary	5	6
College	9	16
Bachelor	23	17
Masters	5	13
PhD	2	-

2.2.1.2 Measures

Participants completed a 90-item questionnaire, which took approximately, 30 minutes. The participant information informed them of the right to anonymity and confidentiality (see- Appendix A). The first section of the questionnaire asked participants for their gender, age, occupation, date of diagnosis (for BD participants), education level and a participant ID (that could be used to identify participants' dataset if they wanted to withdraw their data from the study- see Appendix B).

Wong and Law EI Scale (WLEIS) (Wong & Law, 2002)

The WLEIS was the chosen measure of EI in this thesis as its subscales are consistent with Mayer and Salovey's (1997) definition of EI. The WLEIS measures each aspect of EI in its subscales. The WLEIS is a 16-item scale that measures EI with four subscales; self-emotion appraisal, others' emotion appraisal, use of emotion and regulation of emotion. It is a self-report 7-point Likert-type rating scale ranging from 1 (strongly disagree) to 7 (strongly agree). Each subscale is measured with four items

Self-emotion appraisal (SEA) – Measures the individual's ability to understand their deep emotions and be able to express these emotions naturally. A sample item for this subscale is, "I really understand what I feel."

Others' emotion appraisal (OEA) – Measures the individual's ability to perceive and understand the emotions of those people around them. A sample item for subscale is, "I always know my friends' emotions from their behaviour."

Regulation of emotion in the self (ROE) - Measures the ability of an individual to regulate their emotions, which will enable a quicker recovery from psychological distress. A sample item from this dimension is, "I have good control of my own emotions."

Use of emotion to facilitate performance (UOE) - Measures the ability of individuals to make use of their emotions by directing them towards activities that are productive and personal performance. A sample item is, "I always tell myself I am a competent person."

Previous research (Law et al., 2004; Law, Wong, Huang, & Li, 2008; Shi & Wang, 2007; Wong & Law, 2002), has found support for the reliability, convergent and discriminant validity of the WLEIS four subscales. Coefficient alphas for the EI subscales SEA, OEA, UOE, and ROE, are .82, .81, .87 and .89 respectively (Law et al., 2008). Additionally, the WLEIS has good discriminant validity from personality as measured by the five-factor model (Law et al., 2004). This finding is important as researchers have suggested that some self-report measures of EI are not conceptually distinct from measures of personality (McRae, 2000; Van Rooy & Viswesvaran, 2004).

Toronto Alexithymia Scale (TAS-20; Bagby, Parker, & Taylor, 1994; Bagby, Taylor, & Parker, 1994)

The TAS-20 was used to measure difficulties in identifying feelings, difficulty describing feelings and externally oriented thinking. The TAS-20 comprises three scales: difficulty identifying feelings (DIF: seven items), difficulty describing feelings (DDF: five items), and externally oriented thinking (EOT: eight items). Twenty items are rated from 1, strongly disagree, to 5, strongly agree. Examples are the following: “I am often confused about what emotion I am feeling”, “I am often puzzled by sensations in my body”, and “It is difficult for me to reveal my innermost feelings even to close friends”. The sum of all 20 items, taking reversed items into account, was used to generate a TAS total score. The TAS-20 has previously demonstrated convergent, and discriminant validity and its scores show high agreement with observer ratings of alexithymia (Bagby et al., 1994).

Sense of Emotional Control Questionnaire (SEC) (Sundin et al. unpublished manuscript)

The SEC is a 23 item self-report measure of regulation of emotion. The SEC was constructed to capture levels and types of emotion control strategies and processes that are either adaptive or maladaptive. The SEC has adaptive and maladaptive emotional regulation control as its subscales.

Adaptive emotional control (AEC) - is measured with 12 items. An example item of an adaptive emotion control is, “I am the kind of person who accepts help from others when necessary”.

Maladaptive emotional control (MEC) is measured with 11 items. An example item that measures maladaptive emotional control is, “I am the kind of person who gets fed up and leaves when angered”.

For each of the 23 items, participants are asked to report how he or she handles emotionally stressful situations using a 4-point measurement-scale, where “1” indicates very untrue of me, “2” indicates somewhat untrue of me, “3” indicates somewhat true of me, and “4” indicates very true of me.

2.2.1.3 Diagnostic and Symptom Measures

Diagnostic and symptom measures were used to document current mood state of participants. The descriptive analyses are included in the results.

Centre for Epidemiological Studies Depression Scale (CES-D) (Radloff, 1977)

The CES-D is a 20 item self-report scale that measures symptoms of depression in nine different symptom groups according to the guidelines of the American Psychiatric Association Diagnostic and Statistical Manual, (5th edition). These nine symptom groups include: sadness (dysphoria): questions 2, 4, 6; loss of Interest (anhedonia): questions 8, 10; appetite: questions 1, 18; sleep: questions 5, 11, 19; thinking / concentration: questions 3, 20; guilt (worthlessness): questions 9, 17; tired (fatigue): questions 7, 16; movement (agitation): questions 12, 13 and suicidal ideation: questions 14, 15. Response categories indicate the frequency of occurrence of each item, and are scored on a 4-point scale ranging from 0 (rarely or none of the time) to 3 (most or all of the time). The range of possible scores is from 0 (for those who say 'not at all or less than one day' to all 20 questions) to 60 (for those who say '5-7 days' or 'nearly every day for 2 weeks' for all 20 questions) with the high scores signifying the presence of more symptomatology. A CES-D cut-off score of 16 is indicative of "significant" or "mild" depressive symptomatology is recommended according to the validation study on a general population by Radloff (1997). It is equivalent to experiencing six symptoms for most of the previous week or a majority of symptoms on one or two days. High scores indicate greater symptoms. The scoring of positive items is reversed (Questions 4,8,12 and 16). This scale has been found to be reliable ($\text{Alpha} > .85$) in previous research (Hann, Winter, & Jacobsen, 1999).

The determination of possible depressive symptom category is based upon an algorithm with the following:

Meets criteria for Major depressive episode: Anhedonia or dysphoria nearly every day for the past two weeks, plus symptoms in an additional four DSM symptom groups noted as occurring nearly every day for the past two weeks.

Probable major depressive episode: Anhedonia or dysphoria nearly every day for the past two weeks, plus symptoms in three additional DSM symptom groups reported as occurring either nearly every day for the past two weeks, or 5-7 days in the past week.

Possible major depressive episode: Anhedonia or dysphoria nearly every day for the past two weeks, plus symptoms in two additional DSM symptom groups reported as occurring either nearly every day for the past two weeks, or 5-7 days in the past week.

Subthreshold depression symptoms: People who have a CESD-style score of at least 16 but do not meet above criteria.

No clinical significance: People who have a total CESD-style score less than 16 across all 20 questions.

Young Mania Rating Scale (YMRS) (Young, Biggs, Ziegler, & Meyer, 1978)

The YMRS has 11 items and is based on the patient's subjective report of his or her clinical condition over the previous 48 hours. Each item has five explicitly defined grades of severity. The choice of items was made on the basis of published descriptions of the core symptoms of the manic phase of bipolar affective disorder and includes those abnormalities which were felt to exist over the entire range of illness from mild to severe. The YMRS is typically administered by a third-party clinician, but it is provided in this research as a self-assessment.

There are four items that are graded on a 0 to 8 scale (irritability, speech, thought content, and disruptive/aggressive behaviour). These four items are given twice the weight of the others to compensate for poor cooperation from severely ill patients. The remaining seven items (elevated mood, increased motor activity/energy, sexual interest, sleep, language/thought disorder, appearance, insight) are graded on a 0 to 4 scale. Scores in the 21 - 60 range indicate manic symptoms are present (with increasing severity as scores rise). This scale has been found to be reliable (.84) in previous research (Altman, Hedeker & Janicak et al., 1994).

2.2.2 Investigation 2- Experimental study of enhanced and impaired facial emotion recognition in individuals with BD

The experiment measured emotion perception. The main aim of the experiment was to assess the ability of participants to recognise emotions (emotion perception) from facial expression based on the six universally recognised emotions: happiness, sadness, anger, fear, disgust and surprise (Ekman & Friesen, 1975). The experiment was conducted to determine if BD participants compared with the controls can correctly identify emotions when looking at pictures of faces, misattribute emotions and compare the response times. The experiment data was collected as part of a larger data collection exercise in which the qualitative data was collected (see chapter 5 of this thesis). The participants gave consent to participating in a short experiment following the interview of the qualitative data collection (see Appendix C).

2.2.2.1 Method

Emotional performance recognition accuracy, error and response time task

Design: A 2 x 6 mixed design was used. The first independent variable was participant status of the participants with BD and typical controls (Between; Group – BD and Control). The BD group is the first level while typical controls are the second level. The second independent variable was emotion, with happiness, sadness, anger, fear, disgust and surprise as the six levels (Within; Emotions- happiness, sadness, anger, fear, disgust and surprise). The dependent variables were emotion recognition accuracy (%) and response time (milliseconds). Error (misattribution) of emotions was also measured.

Participants: Thirty-five (participants with BD $n=20$; typical controls $n=15$) participants who had consented to participating in the interview study of this thesis, also participated in this experiment (see Appendix C). All participants with BD in this study were receiving medication (mood stabilizers, antipsychotics, antidepressants, and benzodiazepine anxiolytics) at the time of this experiment. Further information on participant recruitment can be found in section 2.2.1 of this chapter. The College Research Ethics Committee for Business, Law and Social Sciences at Nottingham Trent University granted ethical approval for this experiment study (see Appendix H).

Power: It is fully recognised that the small sample size in this study means that the analyses of this experiment are potentially underpowered. Therefore, the findings of this study should be treated with caution as not all effect between and/or within groups may be detected or may even be overestimated. Ideally it would have been better to have carried out a-priori power calculations to estimate an appropriate sample size. However, various factors such as research aims, the availability of a relevant previous literature (on which to base estimates), and effect patterns in the available previous literature, can influence the selection of sample size and power, making such calculations a complex and (even when carefully carried out) potentially misleading endeavour (Baguley, 2012; Hoenig & Heisey, 2001; Thomas, 1997). In this case the opportunity for exploratory experimental work arose after the questionnaire-based study had been conducted. At this point a decision was made to treat the work as exploratory and to administer the experiment to the same participants who took part in the questionnaire-based study. This decision was made for practical reasons: appropriate sample availability/ease of access, and to make the findings from the two studies comparable. Thus, the initial work offered an opportunity for some experimental exploration but was inherently bound by the sample (size) already obtained. In addition, there was little or no appropriate available literature

on which to base the calculation, therefore, it would have practically been difficult to make the initial estimates. It was also decided not to conduct any post hoc calculations: Hoenig and Heisey (2001) described post hoc calculations as similar to the logical problem of the concept of the P value as an observed type I error. This is because post hoc calculations involve using significant or non-significant p-values from the newly generated data under inspection, to confirm that a given effect in the newly generated data under inspection, is significant or non-significant. This is clearly problematic because it is circular in its logic and hence a futile endeavour (Baguley, 2012; Hoenig & Heisey, 2001).

To summarise, it is acknowledged that sample size is a potentially problematic in this work and the conclusions drawn from it. Never-the-less it is freely admitted that a-priori estimates calculations would have been useful for this exploratory experimental work. However, sample size and power calculations are potentially complex being subject to various factors (see above). Here, such calculations were not carried out owing to the way in which the opportunity to test this population arose and the practicalities that surrounded it (including available sample, and the availability of a literature deemed appropriate for the calculation). Theoretical issues, outlined above, also mean that post hoc estimates can be complicated and potentially futile and therefore none were carried out. Notwithstanding, it is suggested that the results from this exploratory work remain useful and offer a new insight for researchers interested in pursuing this work, even if some caution needs to be observed (a necessary thing in all research).

2.2.2.2 Materials and procedure

A total of 36 facial emotional expressions were selected arbitrarily from the Radboud face database (Langner, et al., 2010, <http://www.socsci.ru.nl:8180/RaFD2/RaFD?p=main>). Radboud Face Database (RaFD) has 8040 coloured face emotion displays with a 1024 x 681 resolution. RaFD has 67 participants. The RaFD is an initiative of the Behavioural Science Institute of the Radboud University Nijmegen, which is located in Nijmegen (the Netherlands). The RaFD was chosen for this research because it is one of the few face databases with various facial expression options that can be used freely for non-commercial scientific research by researchers who from an officially accredited university. In addition, RaFD is a relatively new face database that has growing database registered users because of its easy access and comprehensibility (Anitha, Venkatesha, Suryanarayana & Adiga, 2010). Permission to use emotion expression faces for this experiment was granted by the owners of the Radboud faces database. Six versions of faces (3 males and 3 females) were selected to display each emotion

(e.g. face 1 male, showing all six emotions and face 2 female showing the emotions). Examples of the faces along with the response screens are presented in Figure 3. The stimuli were presented on a Nexus 7 tablet (screen size 7 inches, resolution 1280 x 800 pixels) in a randomised order using OpenSesame Version 2.8.3 (Mathôt, Schreij & Theeuwes, 2012). Administration time was 10 minutes, participant touched the tablet screen to record their responses. There was a practice session with two faces (1 male and 1 female) that presented all six emotions randomly to enable participants to understand the task they were about to participate in. The practice could be repeated until the participant felt familiar with the task. In each trial, a face was presented on screen for 4 seconds. Immediately following this, the participants were presented six emotion labels, from which they had to select the emotion that best represented the emotion of the face they had just seen. The participants had 4 seconds to make their response (touch emotion label) before the trial was terminated and the next trial began. Responses within the 4 seconds response time cleared the screen and initiated the next trial face. The order of the emotion labels was randomised across trials (e.g. sad, anger, happy for one trial and happy, sad, anger for another trial; see Figure 3). Participants were scored 1 and 0 for each correct and incorrect answer.

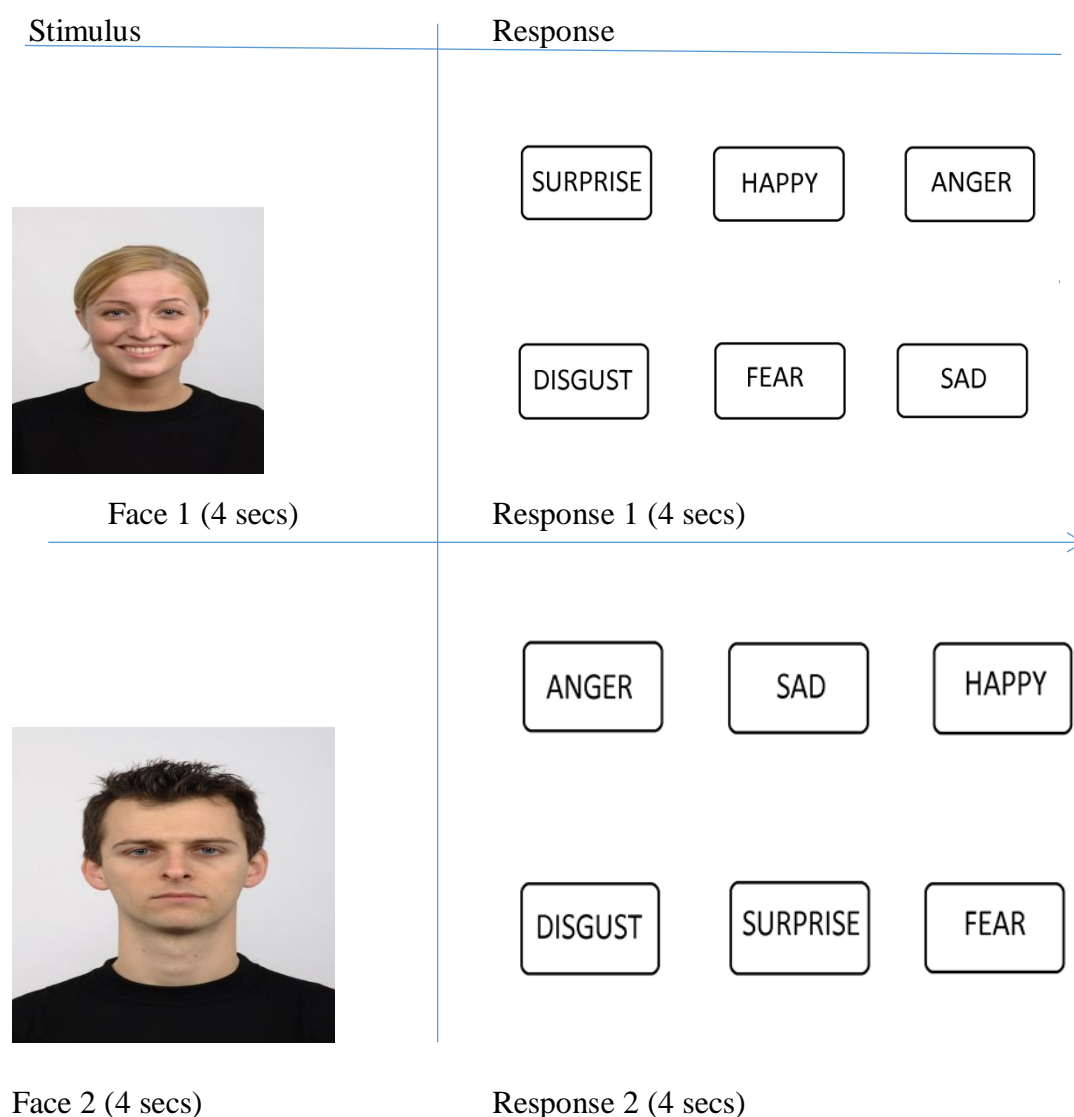


Figure 3: Examples of the faces, presentation and response screens, with timings.

2.2.3 Summary of the quantitative studies

The questionnaire study used three measures (WLEIS-EI, TAS-20-alexithymia and SEC-emotion control/regulation) to measure the EI, alexithymia and emotion regulation in individuals with BD when compared to controls. Two mood symptom measures (CESD-depression, YMRS- mania) were used to measure current mood symptoms of participants. The experiment was an emotional performance recognition accuracy, error and response time task. The aim of the experiment was to assess the ability of participants to recognise emotions from facial expressions. The participants with BD will be compared to controls in both the questionnaire study and experiment.

2.3 Investigation 3- Understanding positive and negative emotions in individuals with bipolar disorder: A qualitative investigation

A qualitative research, is a non-numeric form of collecting and analysing information. A qualitative data focuses on exploring an in-depth instance or example in participants interviews (Blaxter, Hughes & Tight, 1996). Cassell and Symon (1994) describes qualitative research as adding flesh and blood to analysis of a subject matter. In addition, the close researcher involvement in a qualitative research, helps the researcher gain an insider's view of the subject matter allowing the researcher to find issues that are often missed by the quantitative research method. Qualitative research has been critiqued, Delamont (1992) describes it as time-consuming and that the presence of the researcher can have a profound effect on the participants in the study. According to Hughes (2004), a qualitative research has no reliability and validity. The origin of a qualitative study is in single contexts; hence its subjective nature makes it difficult to apply conventional standards of reliability and validity. Nonetheless, the qualitative study in this thesis was designed to gain an in-depth knowledge and examine if people with BD have different abilities to understand positive emotions and negative emotions, compared to the control group.

2.3.1 Methods

To understand positive and negative emotions in individuals with BD and controls, a semi-structured interview method of investigation was used. Methods are described below.

2.3.1.1. Participants

Thirty-five ($n=35$) participants participated in the semi-structured interviews, approximately half of them were individuals with BD ($n=20$) and the other half were controls ($n=15$). Participants of this study were recruited from the sample of participants that had taken part in the questionnaire study (see Appendix C). The participants' names were changed in order to ensure anonymity and confidentiality. The ages of the participants ranged from 18 to 69 years old (mean= 38.5 years, $SD=16.7$). Participant information for BD (see Table 3) and control participants (see Table 4) can be seen below. Further information on participant recruitment can be seen in section 2.2.1 of this chapter.

Table 3: BD group participant information

	Gender	Age	Year of Diagnosis	Recruited from
Derek	M	51	2007	BPUK
Mic	M	29	2013	BACP
Andy	M	52	1992	BPUK
E	F	45	1996	BPUK
Kerry	F	35	1994	BPUK
Mel	F	50	2010	BPUK
Sarah	F	41	2008	BPUK
Isabel	F	56	1998	BPUK
Gary	M	39	1997	BPUK
Lola	F	53	2006	BPUK
Lu	F	30	2011	BPUK
Mary	F	41	1999	BACP
Gab	M	46	2003	BACP
V	M	50	1981	BACP
Jane	F	51	2007	BPUK
Kim	F	33	2013	BACP
Ruby	F	40	2010	BPUK
Jamie	M	64	1990	BPUK
Nick	M	28	2011	BPUK
Darren	M	45	2009	BPUK

Note: F= Female, M=Male, BPUK= Bipolar UK, BACP=British Association for Counselling and Psychotherapy

Table 4: Control group participant information

	Gender	Age	Recruited from
Pat	F	40	Nottingham
David	M	26	Nottingham
Eileen	F	35	Birmingham
Dot	F	21	Birmingham
Naomi	F	23	Birmingham
Aaron	M	52	Nottingham
Josh	M	33	Birmingham
Sam	M	41	Birmingham
Jerry	M	19	Nottingham
Billy	M	25	Nottingham
William	M	18	Birmingham
Iris	F	30	Birmingham
John	M	36	Birmingham
Diana	F	69	Birmingham
Rita	F	40	Birmingham

Note: F= Female, M=Male

2.3.1.2 Materials and Measures

The qualitative data was collected through one to one semi-structured interviews held in booked public rooms in the local area of the participants. This style of interviewing was selected for its flexibility and because it enables rapport to be developed, allows participants to feel relaxed, think, speak and be heard; and is well suited to in-depth and personal discussion (Reid, Flowers, & Larkin, 2005).

The interviews were audio recorded, with all interviews lasting between 45 minutes and 1.5 hours. The interview captured and explored participants' experiences and perspectives on positive and negative emotions. Following the interviews, the audio recordings were transcribed verbatim by the author of this thesis. The interview schedule provided initial guidance and prompts, but if any seemingly poignant topics arose, participants were prompted for further information. The participants were encouraged to dictate the direction of the interview as comfortable as they could and told to explore topics beyond the interview schedule. All data were anonymised and stored confidentially.

The interview schedule was designed by the writer and the director of studies, who is a clinical psychologist. The interview schedule had three loose aims. It was designed by using the key concepts of Mayer and Salovey (1997)'s model of EI (Perception, understanding, use of thoughts and regulation of emotion). The participants were asked to describe their perception, understanding and how they use their feelings in everyday situations in themselves and others. Additionally, the participants were asked about their current mood and how it had been in the week before the interview. Lastly, participants were asked to recall a recent experience that they experienced an intense feeling with themselves or others. The participants were encouraged to be both descriptive (e.g. Can you explain how you controlled your feelings?) and reflective (e.g. Would you say this event was positive or negative?). All the interview questions covered the following topics; perception, use of emotion, understanding and regulation of emotions in themselves and others. See Appendix D for interview schedule

The interviews were conducted when ethical clearance had been granted. The following ethical guidelines were applied: informed consent, the right to privacy and anonymity, protection from harm, sensitivity and duty of care. The participants were given full and complete information about the research, and it was made clear that they had the right to withdraw at any time, and request the interviews to be destroyed. Through the interviews, it was emphasized that questions did not have to be answered, and it was clearly stated that in the event of any distress, the interview would be stopped or the tape recorder turned off. The College Research Ethics Committee for Business, Law and Social Sciences at Nottingham Trent University granted ethical approval for this study (see Appendix H).

2.3.2 Summary of the qualitative study

The qualitative data was collected through one to one semi-structured interviews. The qualitative study examined if people with BD have different abilities to understand positive emotions and negative emotions. Twenty participants with BD ($n = 20$) and fifteen controls ($n = 15$) participated in the interviews.

2.4 Summary

This chapter has discussed the research methodology employed in this thesis. The use of a mixed methods approach to investigate the aims of this thesis makes the work more comprehensive, because it accepts both the inductive and deductive nature of the methods of investigation respectively (Johnson & Onwuegbuzie, 2004). The EI aspects (Perception, understanding, use of emotion and regulation) have various depths, so it is important to use different methods of investigation to gain an in-depth understanding of the concept. Three investigations involved in this research have been discussed. These investigations are; questionnaire based quantitative study, experiment and qualitative studies. Overall, this research involved 96 participants in the questionnaire study, 35 interviewees and 35 experiment participants. Following this chapter are the three chapters presenting the results of this thesis and a discussion chapter.

Chapter 3 (Study 1)

A questionnaire-based case-controlled quantitative study exploring emotional intelligence in bipolar disorder

3.1 Introduction

BD (Bipolar Disorder) is one of the most common mental health disorders among adults in the UK (The Office for National Statistics Psychiatric Morbidity report, 2001). Previous research has focussed on factors, such as quality of life (Fulford, 2011) and neuropsychological deficits (Randall, 2010) in individuals with BD. Poor EI in individuals with BD has also been documented, in terms of regulation of emotion (Green et al., 2011; Gruber et al., 2011; Gruber et al., 2012; Gruber et al., 2014), and emotion recognition and perception (Fulford et al., 2014; Gruber et al., 2011; Kohler et al., 2011). To our knowledge, very few published studies have directly investigated EI in individuals with BD (e.g. Chapela et al., 2016; Varo et al. 2017); however, a study found that participants with schizophrenia had lower EI scores compared to the controls (Kee, et al. 2009). There have been very few studies that have researched emotional impairments at the various phases (manic and depressed phases) of BD. The phases of BD have been found to affect emotional processing in individuals with BD (Bozorg et al., 2014). Gray and colleagues (2006) proposed that emotion processing deficits in individuals with BD during the different phases of the disorder may involve mood-congruent biases in emotion perception. Although Bozikas et al. (2006) and Derntl et al. (2009) found emotional impairments in patients with euthymic BD, Harmer et al. (2002) found impairments in those in remission, suggesting that emotion deficits may be a characteristic of BD and not related to disease severity. These inconsistent findings may be partly explained by the symptoms that accompany the phases of BD, with the manic and depressive states having different effects on the individual e.g. during mania, individuals with BD experience delirium and therefore might have heightened attention to positive emotions (happiness and surprise), and during depression they have heightened attention to negative symptoms (Hill et al. 2009). The extent to which emotion processing varies with the different phases of BD remains an important unanswered question (Daros et al., 2014; Gopin et al., 2011; Harris et al., 2009).

This thesis examined all components of EI (perception and understanding, use of emotion to facilitate thoughts and regulation), and aims to contribute to the growing literature

in this important area. EI is a concept that is important for understanding an individual's social functioning, emotional characteristics, and emotional processing, therefore there is a need to research the construct in disorders of psychosocial difficulties such as BD. In addition, since research on EI in individuals with BD is limited, gender differences in terms of EI in individuals with BD have not been researched.

Previous research (Berastegui, van Leeuwen, & Chabrol, 2012; Parker et al., 2001; Velasco, Fernández, Páez & Campos, 2006) has examined alexithymia in healthy individuals, however, research on alexithymia in individuals with psychiatric disorders, particularly BD, has been left relatively unexplored. In a recent study, Serafini et al. (2016), researched alexithymia in individuals with BD, however, they focussed on its relationship with other factors such as quality of life. Research on individuals with depression (Akkerman, 1996; Karayağız & Baştürk, 2016; Li, Zhang, Guo, & Zhang 2015), found a negative correlation between alexithymia and depression. In addition, Li et al. (2015) found their participants with depression had alexithymic symptoms in two subscales of the TAS-20, namely difficulty identifying feelings, and difficulty describing feeling.

As noted previously, there is paucity of research of EI in individuals with BD. Hence, gender differences have been under-researched. However, research on EI in healthy individuals have been inconsistent. Whilst Meshkat and Nejati (2017) found no gender difference in the EI of their male and female participants, Van Rooy and colleagues (2005) found the female to have a higher EI than their male participants. In terms of gender differences in alexithymia, research on psychiatric disorders have also been inconsistent, Honkalampi and colleagues (2000) found men to have more alexithymic symptoms in their participants with depression when compared to women. Additionally, Karayagız and Basturk (2016) found no gender difference in their participants with unipolar and bipolar depression when compared to controls. The inconsistencies in gender differences need to be further investigated.

Although researchers (e.g. Mayer & Salovey, 1990) recognise the relationship between EI and alexithymia constructs, very little attempt has been made to evaluate the relationships between the two constructs empirically (Parker et al., 2001), particularly in affective disorders such as BD. Furthermore, research on adaptive and maladaptive emotion regulation in individuals with BD have been inconclusive or contradictory. For example, Hay et al. (2015) found that individuals with BD adopt cognitive adaptive strategies (e.g. reappraisal). However, Scott and Pope (2003) found that individuals with BD adopt maladaptive emotion regulation

strategies (e.g. avoidance), particularly when they are experiencing hypomanic symptoms. It is therefore important to further research these inconsistencies in literature.

3.2 Hypotheses

The review presented above in section 3.1 indicates that there are several gaps in the literature on EI in BD; studies have not researched the EI construct in BD, but only researched aspects (i.e. perception, understanding, use of emotion to facilitate thoughts and regulation) of it. This questionnaire-based quantitative study was designed to fill this gap. It was hypothesised that individuals with BD would have lower EI (WLEIS) scores compared to the controls. It was also hypothesised that individuals with BD would have more alexithymic symptoms when compared to the controls on the TAS-20 and that mood symptoms (depression and mania) on the CES-D, and YMRS will have the biggest influence on the BD group. Based on previous research, it was hypothesised that an inverse negative relationship between alexithymia and EI will be found from the correlation between TAS-20 (for alexithymia) and the WLEIS (for EI). Additionally, it was hypothesised that individuals with BD will adopt maladaptive emotion control strategy when compared to the control group using the scores of the SEC. It was further hypothesised that there will be gender differences in the BD and control groups in terms of their EI and alexithymia symptoms.

3.3 Methods

Data collected from participants' questionnaires were entered into a between-subjects 2 X 2 factorial ANOVA group (BD, control) X gender (male, female). The first independent variable was participant status of the participants with BD and control group (general population). The second independent variable was the gender of participant (male or female). The dependent variables were EI, alexithymia, mania and depression measured with the scores on the WLEIS, TAS-20, YMRS and the CES-D. Independent samples t-test was used to measure adaptive emotion control and maladaptive emotion control with the SEC. In addition, Spearman's rho correlation was used to examine the relationship between the WLEIS, TAS-20, SEC and the diagnostic measures for participants and to examine the relationship between alexithymia and EI with the TAS-20 and the WLEIS scores.

3.3.1 Participants

The participants ($N=96$) in the study comprised individuals with BD ($n=44$) and a control group of people from the general population ($n=52$) as controls. The participant details are elaborated in the methods chapter of this thesis (see section 2.2.3).

3.3.2 Measures

The participants completed a 90 item questionnaire, which took approximately, 30 minutes. The participant information sheet informed them of the right to anonymity and confidentiality. The first section of the questionnaire asked participants for their gender, age, occupation, date of diagnosis (for BD participants), education level and a participant ID (that could be used to identify participants' dataset if they wanted to withdraw their data from the study). More details about the measures are explained in the methods chapter of this thesis (see Chapter 2, section 2.3).

3.4 Results

3.5 Statistical analysis

Data analysis was carried out using a combination of IMB's SPSS statistical software program (version 24.0) and the Jamovi (<https://www.jamovi.org/>) open stats software (Version 0.8.5.0).

3.5.1 Diagnostic measures analysis

A Shapiro-Wilk's test ($p > .05$) (Shapiro & Wilk, 1965; Razali & Wah, 2011) and a visual inspection of normal Q-Q plots and box plots showed that the scores were approximately normally distributed in the diagnostic groups (BD and control, Table 5). Cronbach's alpha in this study for the CES-D is .92, whilst the YMRS is .72.

Table 5: Descriptive statistics for the diagnostic measures

	BD (<i>n</i> =44)				Control (<i>n</i> =52)			
	M	SD	S (.35)	K (.70)	M	SD	S (.33)	K (.65)
CES -D	22.00	14.13	0.25	-1.33	15.73	11.40	1.06	0.94
YMRS	18.66	5.97	1.22	1.72	20.44	6.22	0.70	0.11

Note: S=Skewness (Standard Error), K=Kurtosis (Standard Error), CES-D=Centre for Epidemiological Studies Depression Scale, YMRS- Young Mania Rating Scale

The Centre for Epidemiological Studies Depression Scale (CES-D) showed that 18 of the 44 BD participants scored below 16 indicating no depressive symptoms, 2 participants scored 16 indicating sub-threshold depressive symptom while 24 participants scored between 18 and 46 indicating mild to significant depressive symptoms. The Young Mania Rating Scale (YMRS) showed that 30 of the BD participants scored below 20 indicating no manic symptoms, while 14 participants scored between 21 and 38 indicating the presence of manic symptoms.

Table 6 shows Spearman's rho correlation (r_s). EI and depression were negatively correlated and are statistically significant, suggesting that EI is affected by depression in both groups with the most effect in the BD group, $r_s(42) = .71, p < .01$. Thus, higher level of depression is associated with a lower EI and hence, reduced emotional intelligence.

Table 6: Showing relationship between the WLEIS, TAS-20, SECa, SECm and the diagnostic measures for participants

	BD (<i>n</i> =44)		Control (<i>n</i> =52)	
	Depression (CES –D)	Mania (YMRS)	Depression (CES –D)	Mania (YMRS)
Emotional intelligence (WLEIS)	-.71**	-.33*	-.39**	-.04
Alexithymia (TAS-20)	.62**	.40**	.49**	.07
Adaptive emotional control (SECa)	-.55**	-.29	-.02	.32*
Maladaptive emotional control (SECm)	.65**	.50**	.42**	.27*

* $p < 0.05$ ** $p < 0.01$ Note: Spearman's rho correlation, WLEIS= Wong and Law Emotional Intelligence Scale; CES-D=Centre for Epidemiological Studies Depression Scale, YMRS- Young Mania Rating Scale, TAS-20= The Twenty-Item Toronto Alexithymia Scale, SECa- Sense of Emotion Control Questionnaire - adaptive emotion control subscale, SECm- Sense of Emotion Control Questionnaire - maladaptive emotion control subscale

Spearman's rho correlation between alexithymia and depression (see Table 6) showed a statistically significant correlation, suggesting that there is a relation between alexithymia and depression in both groups with the stronger effect in the BD group $r_s(42) = .62, p < .01$, the correlation between adaptive emotion control and depression was negative and statistically significant, indicating a negative relationship between depression and adaptive emotion control in the BD group, but not the control group. There was a statistically significant positive correlation between depression and maladaptive emotion control in both groups, with the stronger effect in the BD group, $r_s(42) = .65, p < .01$. Thus, a high depression indicates adopting maladaptive emotion control.

EI and mania were negatively correlated and statistically significant in the BD group but not the control group, suggesting that EI relates to mania (Table 6). Thus, a high level of mania indicates lower EI. The correlation between TAS-20 and the YMRS (Table 6) was statistically significant in the BD group suggesting that alexithymia scores are affected by mania, $r_s(42) = .40, p < .01$. The correlation between SECm and the YMRS was significant, indicating a positive relation between mania and adopting maladaptive emotion control $r_s(42) = .50, p < .01$ in both groups.

To explore whether there are differences in group (BD vs. control) and gender in the depression (CES-D) scores, a between-subjects ANOVA was performed with Group (BD,

control) and Gender (male, female) as the independent variables. The results indicated that there was a significant main effect of group [$F(1,92) = 5.86$, $p=0.01$, $\eta^2 = 0.05$] but no main effect of gender [$F(1,92) = 1.73$, $p=0.19$, $\eta^2 = 0.01$], and no interaction between group and gender [$F(1,92) = 0.06$, $p=0.80$, $\eta^2 = 0.001$]. This indicated that the BD group were scoring significantly higher on the depression scale (see Table 7), and thus had more depressive symptoms than the control group.

Table 7: Mean and standard deviations of the BD and controls on the CES-D

	Groups	Gender	Mean	SD	<i>N</i>
CES-D	BD	Male	24.00	15.20	22
		Female	20.00	13.00	22
		Total	22.00	14.13	
	Control	Male	17.10	12.10	27
		Female	14.30	10.70	25
		Total	15.73	11.40	52

Note: CES-D=Centre for Epidemiological Studies Depression Scale, BD= Bipolar Disorder, SD = Standard Deviation

To explore the differences in the mania (YMRS) scores between the males and females in each of the groups, a between-subjects ANOVA was performed with Group (BD, control) and Gender (male, female) as the independent variables. The results indicated that there was no main effect of group [$F(1,92) = 2.05$, $p=0.15$, $\eta^2 = 0.02$], no main effect of gender [$F(1,92) = 0.23$, $p=0.62$, $\eta^2 = 0.002$] and no interaction [$F(1,92) = 1.48$, $p=0.22$, $\eta^2 = 0.01$]. This indicated that the BD group (see Table 8) did not differ from the controls in their manic symptoms.

Table 8: Mean and standard deviations of the BD and controls on the YMRS

	Groups	Gender	Mean	SD	<i>N</i>
YMRS	BD	Male	19.70	6.93	22
		Female	17.60	4.77	22
		Total	18.66	5.97	44
	Control	Male	20.00	4.80	27
		Female	20.90	7.55	25
		Total	20.44	6.22	52

Note: YMRS- Young Mania Rating Scale, BD=Bipolar Disorder, SD= Standard Deviation

3.5.2 WLEIS measuring emotional intelligence

Means and standard deviations of the total scores for the WLEIS for participants (BD and control) and gender (male and female) are presented in Table 9. EI in participants (BD and control) was examined using the WLEIS (Wong & Law, 2002). Cronbach's alpha were .81, .87, .90 and .89 for the self- emotion appraisal, others emotion appraisal, use of emotion to facilitate performance, and regulation of emotion subscales of the WLEIS.

Table 9: Mean and standard deviations of the BD and controls on the WLEIS

	Groups	Gender	Mean	SD	N
WLEIS	BD	Male	69.87	20.81	22
		Female	76.82	14.31	22
		Total	73.30	18.01	44
	Control	Male	84.04	19.44	27
		Female	88.44	11.89	25
		Total	86.15	16.25	52
	Total	Male	77.63	21.11	49
		Female	83.00	14.20	47
		Total	80.26	18.17	96

Note: WLEIS= Wong and Law Emotional Intelligence Scale, SD = Standard Deviation, BD= Bipolar Disorder

To explore the differences in EI (WLEIS) between the males and females in each of the groups, a between-subjects ANOVA was performed with Group (BD, control) and Gender (male, female) as the independent variables. The results indicated that there was a significant main effect of group [$F(1,92) = 13.787$, $p < 0.001$, $\eta^2 = 0.127$], but no main effect of gender [$F(1,92) = 2.69$, $p = 0.10$, $\eta^2 = 0.02$], and no significant group x gender interaction [$F(1,92) = 0.144$, $p = 0.706$, $\eta^2 = 0.001$]. This indicated (see Table 9) that as a whole the BD group were scoring significantly lower in EI and thus less emotionally intelligent than the control group.

3.5.3 TAS-20 measuring alexithymia

Means and standard deviations of the total scores for the TAS-20 for participants (BD and control) and gender (male and female) are presented in Table 10. Cronbach's alpha for the TAS-20 subscales were DDF (Difficulty describing feeling) - .78, EOT (External oriented thinking) - .59 and DIF (Difficulty identifying feeling) - .88.

Table 10: Mean and standard deviations of the BD and controls on the TAS-20

	Groups	Gender	Mean	SD	<i>N</i>
TAS-20	BD	Male	55.27	15.73	22
		Female	48.45	12.42	22
		Total	51.86	14.42	44
	Control	Male	49.52	11.50	27
		Female	47.48	10.68	25
		Total	48.54	11.05	52
	Total	Male	52.1	13.72	49
		Female	47.94	11.41	47
		Total	50.06	12.75	96

Note: TAS-20= the Twenty-Item Toronto Alexithymia Scale; SD = Standard Deviation

To explore the differences in alexithymia (TAS-20) between the males and females in each of the groups, a between-subjects ANOVA was performed with Group (BD, control) and Gender (male, female) as the independent variables. The results indicated that there was no significant main effect of group [$F(1,92) = 1.69, p=0.19, \eta^2=0.01$], no significant main effect of gender [$F(1,92) = 2.94, p=0.09, \eta^2=0.03$] and no group x gender significant interaction [$F(1,92) = 0.85, p=0.35, \eta^2=0.009$]. This indicated (see in Table 10) that as a whole the BD group, did not differ from the controls in their alexithymia symptoms. However, the results indicated a significant group effect in the DIF (Difficulty identifying feelings) subscale, suggesting that individuals with BD have more difficulty identifying their emotions than the controls, [$F(1, 92) = 8.69, p = 0.04, \eta^2=0.08$].

3.5.4 The relationship between EI and alexithymia measured with the WLEIS and TAS-20.

There was a moderate negative correlation between emotional intelligence and alexithymia. The total score of alexithymia correlated significantly with the total score and the four factors of the WLEIS (see Table 11). A negative correlation indicates that lower levels of EI and its four components were associated with higher levels of alexithymia and its factors (Figure 4), as EI scores on the WLEIS increases, alexithymia scores on the TAS-20 decreases. The magnitude of these correlations between EI and alexithymia is uniformly low to medium, suggesting no significant amount of overlap. The third subscale, external oriented thinking (EOT) was not significantly correlated with three (SEA, ROE, UOE) of the WLEIS subscales (Table 11).

Table 11: Correlation between the TAS-20 (alexithymia) and WLEIS (EI) (N=96)

WLEIS	TAS-20			
	DIF	DDF	EOT	Total Score
SEA	-.57**	-.59**	-.14	-.58**
OEA	-.34**	-.41**	-.21*	-.41**
ROE	-.46**	-.32**	-.01	-.37**
UOE	-.44**	-.32**	-.05	-.37**
Total Score	-.55**	-.53**	-.17	-.55**

* $p < 0.05$ ** $p < 0.01$ Note: Spearman's rho (r_s) correlation, WLEIS= Wong and Law Emotional Intelligence Scale; SEA= Self-emotion appraisal; OEA= Others' emotion appraisal; UOE=Use of emotion and ROE= Regulation of emotion. TAS-20= the Twenty-Item Toronto Alexithymia Scale; DIF=Difficulty identifying feelings; DDF=Difficulty describing feelings; EOT=Externally oriented thinking.

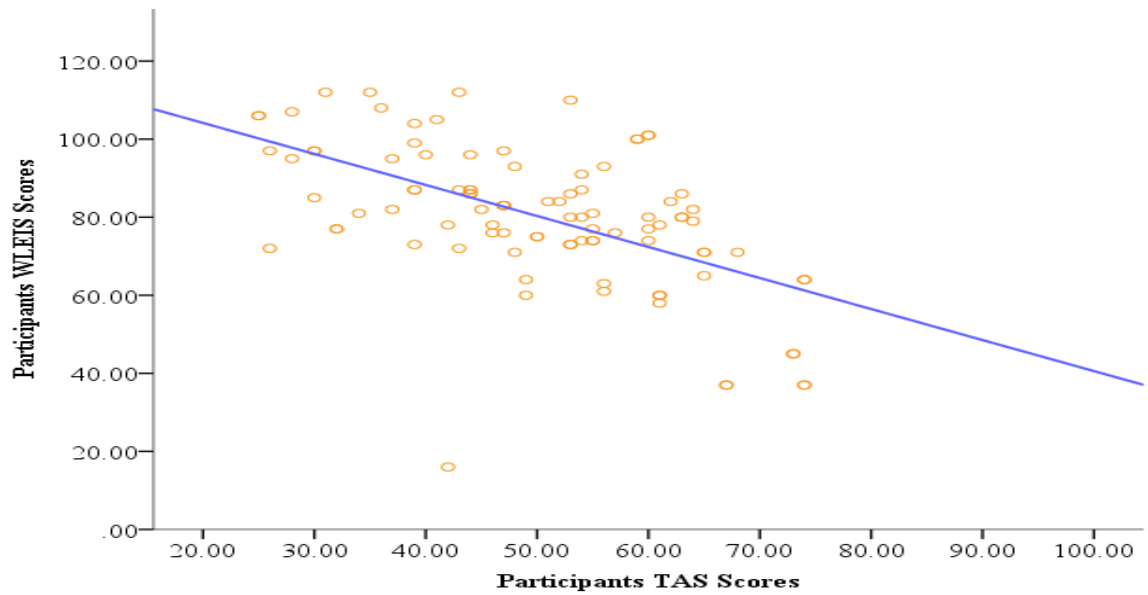


Figure 4: Showing negative correlation between WLEIS and TAS-20

3.5.5 Sense of emotion control questionnaire (SEC)

Independent samples t-test showed differences between groups (BD and control), for adopting adaptive [$t(94) = 2.77, p < 0.05$] and maladaptive [$t(94) = 2.05, p < 0.05$] emotional strategies using the SEC. (See Table 12). BD individuals and the controls differed in adopting adaptive strategies and maladaptive strategies. Higher scores for BD participants on the maladaptive emotion control aspect of the SEC indicated that individuals with BD adopt more maladaptive strategies than the controls. Lower scores for BD participants on the adaptive emotion control of the SEC indicated that the control participants adopt more adaptive strategies when compared to the BD participants. The Cronbach's alpha for the subscales of the SEC in this study were AEC .68 and MEC .77.

Table 12: Showing group differences on the SEC for AEC and MEC

Scale	BD		Control		<i>t</i> Score (df=1,94)
	M	SD	M	SD	
AEC	34.07	5.56	36.79	4.02	2.77*
MEC	26.50	6.50	24.00	5.43	2.05*

* $P < 0.05$ Note: SEC- Sense of Emotional Control Questionnaire, AEC-Adaptive emotional control, MEC- Maladaptive emotional control

3.6 Discussion

This questionnaire-based study measured EI and alexithymia in participant groups (BD and control) and gender differences between the groups using the WLEIS (Wong & Law, 2002) and TAS-20 (Bagby et al., 1994). Mood symptoms (mania and depression) were measured with the YMRS (Young et al., 1978) and CES-D (Radloff, 1977). This study also measured relationship between the WLEIS, TAS-20, SEC and the diagnostic measures for participants, as well as the relationship between alexithymia and EI with the TAS-20 and the WLEIS scores. Lastly, the study tested whether participant groups adopted adaptive or maladaptive emotion regulation strategies with the SEC (Sundin et al. unpublished manuscript).

The key findings of this quantitative study were that participants with BD had lower EI compared to the controls. The BD group did not differ in alexithymia symptoms from the controls. In addition, this study did not find any gender differences in participant groups (BD and control) in terms of their EI, alexithymia, depression or mania. Furthermore, there was an effect of group on the depression scale, suggesting that depression was affecting the scores of the individuals in the BD group. Correlation analysis of mania and depression against EI, alexithymia and emotion regulation found a negative relationship between EI and depression, suggesting that a higher level of depression relates to lower EI. Furthermore, alexithymia was correlated with depression in both groups with the most effect in the BD group and correlated with mania in the BD group. Mania and depression were correlated with adopting maladaptive emotion control (regulation) in BD and control participants. Correlation analysis of EI and alexithymia found a significant negative relationship between EI and alexithymia, suggesting that as EI scores increase, alexithymic symptoms decrease and vice versa. Finally, the analysis of the SEC (adaptive and maladaptive emotion control) suggests that participants with BD adopt more maladaptive emotion regulation strategies when compared to the controls.

The findings supported the hypothesis that individuals with BD will have lower EI scores compared to the controls, and the findings of Chapela et al. (2016) and Varo et al. (2017) who also found a difference in the EI of individuals with BD when compared to the controls. More than half of the participants in the BD group were experiencing mood symptoms. Research (Fulford 2011), as well as the four-branch EI model of Mayer and Salovey (1997) purport that perception of changes in one's mood helps one experiencing the onset of a depressive or manic episode to take precautionary measures against spiralling into a full-blown episode. The results of this questionnaire study are not surprising, since adequate emotion perception is essential towards becoming emotional intelligent. Based on results of this study that an increase in depression reduces EI, an individual experiencing a mood symptom may not have the capability to read emotions in themselves or others, implying a lack ability to use informative social cues that may help to modify behaviour accordingly. Higher EI during mood episodes, then, may serve as a buffer against the most severe consequences of these episodes.

The hypothesis that individuals with BD will have more alexithymic symptoms when compared to the controls on the TAS-20 was not supported. Individuals with BD did not differ from controls in showing alexithymic symptoms. Although, mania was correlated to alexithymia in the BD group, there was no overall group difference. While many studies have not researched alexithymia in BD, research on other psychiatric disorders, such as schizophrenia and depression, are not in agreement. Fogley, Warman and Lysaker (2014) found participants with schizophrenia to have lower alexithymia scores when compared with their controls. The result in this study also found that participants with BD differed to the controls in one subscale (DIF- difficulty identifying feeling) of the TAS-20. The result of the TAS-20 is consistent with the findings of previous studies (Bora, et al. 2005; Getz, et al., 2003; Harmer et al., 2002; Lembke & Ketter, 2002; Venn et al., 2004) that have used the emotion recognition task to study recognition of emotion in BD and found that individuals with BD have difficulties recognising and identifying their emotions. Although many studies have not researched alexithymia in BD, research on other psychiatric disorders such as schizophrenia and depression are in agreement. Fogley, Warman and Lysaker, (2014) found participants with schizophrenia to have lower scores on the difficulty identifying feelings and external orienting thinking subscales of the TAS-20 when compared to the controls. Li et al. (2015) also found alexithymic symptoms in the DIF and DDF subscales of their participants with depression. This finding gave an opportunity to adopt another method of data collection, namely experiment on facial emotion recognition (Chapter 4). The experiment was designed in an

effort to corroborate the findings of these differences found in this quantitative study. More research is needed to understand alexithymia in BD particularly measuring the effect of the phases of BD on the different subscales of the TAS-20 (DIF, DDF and EOT). Although the Cronbach's alpha of the EOT subscale of .59 can be considered undesirable, however, there were no items that would have increased reliability if they were deleted in the subscale. A low alpha for the EOT subscale is consistent with previous research, e.g. (Craparo, Faraci & Gori, 2015). Furthermore, to the best of our knowledge, this study is also one of the first studies to administer the TAS-20 to individuals with BD.

The findings supported the hypothesis of a negative relationship between alexithymia and EI as measured by the TAS-20 and the WLEIS, respectively. Alexithymia (TAS-20) was moderately and negatively correlated with EI (WLEIS). The moderate negative correlation is an indication that lower levels of EI and its four components are associated with higher levels of alexithymia and its factors (see Figure 4). This is consistent with the findings of Ghiabi and Besharat (2011) and Bagby et al. (1994), who found that alexithymia and EI are independent constructs, but are inversely correlated. This result, however, is not in agreement with Leising, Grande and Feber (2009) who have questioned the validity of the TAS-20 as a measure of alexithymia. Contrary to expectations, they found their participants with higher TAS-20 scores reported more emotions (particularly negative ones), and a wider variety of emotions.

The hypothesis that individuals with BD will adopt maladaptive emotion control strategy when compared to the control group was supported. The SEC measured adaptive and maladaptive strategies adopted by participants. The results of the SEC suggested that there were group differences between individuals with BD and the controls in regard to their emotion regulation strategies. BD participants adopted maladaptive strategies when compared to the controls. BD participants also scored lower on adaptive strategies when compared to the controls. These findings are in agreement with the findings reported by Gruber et al. (2011; 2012) and Fletcher et al. (2013) who suggested that BD is associated with a tendency to engage in ineffective or maladaptive strategies to regulate emotion. Considering that BD is characterized by emotional impairments and the many available evidence in support of emotion regulation difficulties in BD (Gruber et al., 2013; Kim et al. 2009; Bozikas, Tonia, Fokas, Karavatos, & Kosmidis, 2006), it is therefore of no surprise that emotion regulation deficits have also been identified in this study, therefore, adding to the growing body of knowledge on the subject matter. The ability to accurately regulate one's emotions and the emotions of other people is critical to normal social interaction and functioning. Consequently, it is no wonder

that social impairment is considered to be fundamental to the functional difficulties commonly found in BD and other affective disorders. (Gruber, 2011a; Malhi et al., 2007). Also, the finding that maladaptive strategies are used more frequently by BD individuals has been long documented in previous literature. For example, Thomas and Bental (2002) found depressed BD individuals to strongly engage rumination (when a person compulsively focuses their attention on the symptoms of their distress, and on its possible causes and consequences, as opposed to its solutions as a response to regulating their emotions, Lyubomirsky, Caldwell & Nolen-Hoeksema, 1998), rumination suggests a maladaptive emotion regulation strategy. In another study by Thomas, Knowles, Tai, and Bental (2002), remitted BD individuals were also found to engage in more rumination when compared to depressed BD individuals. This evidence suggest that maladaptive emotion regulation may be a factor contributing to psychosocial difficulty experienced in individuals with BD and that even in remission, individuals with BD still experience these symptoms. There is also evidence that aggression and anger (maladaptive emotion regulation strategies) are associated with BD. Perlis and colleagues (2004) found that anger attacks were twice as common in the BD participants when compared to individuals with major depressive disorders. In addition, Garo, Gunawardane, and Goldberg (2008) also found manic and depressed symptoms to significantly predict trait aggression in individuals with BD. Furthermore, this study is the first study to administer the SEC (Sundin et al. unpublished manuscript) to individuals with BD. Although this study has found emotion regulation deficits in BD, it is recommended that future research should focus on longitudinal studies to check the effect of the different phases of BD and the extent of emotion regulation deficits at phases of the disorder. Further work in this area may provide a better understanding of these findings.

The hypothesis that there will be gender differences in terms of participants' alexithymic, depressive and manic symptoms was not supported. In addition, this study did not find overall gender differences in the EI of the participants. A possible explanation for this is that, the symptoms of BD are associated with the disorder and not the gender of the individual experiencing symptoms. In research that measured EI in healthy controls, the results are consistent, with the findings of Goleman (1998), Derntl, et al. (2009) and Bar-On (1997), who found no significant gender differences on the overall EI score of their participants. However, Shi and Wang (2007) found healthy male students to have a higher EI than female students and research has found women to have a higher EI than men (Day & Carroll, 2004; Mayer et al., 1999; Schutte et al., 1998; Van Rooy, Alonso, & Viswesvaran, 2005). The absence of an

effect of gender on depression and mania is, however, not consistent with the findings of Cyranowski, Frank, Young and Shear (2000) who found more women with BD experiencing depression, and Kawa and colleagues (2005) who found more men with BD experiencing mania. In addition, in this thesis, there is no support for the finding of Levant, Hall, Williams and Hasan (2009), who found more men to exhibit higher levels of alexithymia. To the best of knowledge, this thesis contributes to research as one of the first studies to comprehensively evaluate EI and emotional processes in individuals with BD in comparison with a control group.

3.6.1 Limitations of the quantitative study and future research

A limitation is that the measures used are self-report instruments, which generally are at risk of producing social desirability bias (occurs when a respondent provides an answer which is more socially acceptable than his or her true attitude or behaviour, (Kaminska & Foulsham, 2013). This tendency that people are likely to present themselves in a positive way agrees with the studies of Conway and Huffcutt (1997) that found egocentric bias (the tendency to overstress changes between the past and present in order to make the respondent appear more worthy or competent than they actually are, (Schacter, Gilbert & Wegner, 2011) to be a major factor that affects self-rating assessments. However, some researchers have proposed that self-reports must be given priority over objective measures when assessing emotions (e.g. Ben-Zeev, Young, & Madsen, 2009; Watson, 2000), because they allow the measurement of distinct types of moods and emotions (e.g. sadness, happiness, anger).

In addition, The YMRS scale of mania (an interviewer-rated scale) was used as a self-report measure in this study, this could explain the reason for the high mean results that have been presented in Table 5. Responses from participants that were in the manic phase of the disorder at the time of completing the questionnaire might not be entirely correct as manic participants have been known to exaggerate their symptoms and are often unable to properly assess relevant outward symptoms (Young et al., 1978). Also, there are no means to ascertain that participants in the control group are truly healthy adults with no history of psychiatric or neurological illness or substance abuse because participants were recruited in the community (see section 2.3.1.1).

Secondly, the WLEIS was originally developed by Wong and Law (2002) with participants in Hong Kong; the extent of cultural influences in the development of the WLEIS cannot be determined. All the data in this research were collected in the UK and the findings

of this research expand the generalizations of the use of the WLEIS even though the WLEIS has been used in previous studies and different cultures for example among Chinese students (Shi & Wang, 2007) and in Belgium (Libbrecht, Lievens, & Schollaert, 2010). Cross-cultural validity of the WLEIS needs to be verified with further studies.

In last, this study was cross-sectional, hence, a longitudinal study is recommended. Specifically, for the same BD participants, to check the extent to which their different mood phases might influence their responses.

3.7 Conclusion

In summary, the current study contributes to the growing literature in this important area of research. Its novel contributions include examining EI in people with BD, in addition, the results of this research contribute to the importance of EI as one of the important factors in psychosocial interaction. This stresses the importance of EI during mood episodes for individuals with BD, which may safeguard them against the most severe consequences that accompany the mood episodes. Individuals with BD differ in EI when compared with controls. Furthermore, individuals with BD tend to engage in maladaptive strategies in regulating their emotions rather than adaptive strategies when compared to the controls. The analysis further revealed that there are different factors that are important to being emotionally intelligent. Other-emotion appraisal and self-emotion appraisal, adopting adaptive or maladaptive strategies and identification of emotions contribute to the EI construct as stated by Mayer and Salovey's (1997) four branch EI model. Although individuals with BD differ in terms of their EI to controls, it is important to further research this topic. Therefore, the next stage of this thesis aims to explore these basic emotions in order to reveal further information on this topic using experimental and qualitative research methods.

Chapter 4 (Study 2)

Enhanced and impaired facial emotion recognition in individuals with bipolar disorder

4.1 Introduction

Perception of emotion on faces is an important perceptual skill in humans and it is fundamental to emotional and social communication (Harmer et al., 2002). Faces are information rich; hence they reveal an enormous amount of information to the perceiver, including feelings, intentions, motivations, impressions, and, above all, emotions (Altamura et al., 2016). According to Ekman et al. (1987), a person's facial expression communicates many emotions with at least 6 (happiness, fear, surprise, anger, disgust and sadness) of them expressed accurately and usually readily understood by the perceiver. These emotions are recognised universally across different cultures (Ekman, 1999).

It has been long documented that individuals with mood disorders, for example bipolar disorder (BD), have difficulties with perception of emotion (Altamura et al., 2016; Bozikas et al., 2006; Derntl et al., 2009; Kohler et al., 2011; Lembke & Ketter, 2002; Surguladze, et al., 2004). According to Loughland, Williams and Gordon (2002), this difficulty could be owing to difficulty in attending to salient facial features when viewing faces. Whilst many researchers have reported a more general deficit in facial emotion recognition in individuals with BD (e.g., Addington & Addington, 1998; Bozikas et al., 2006; Daros et al., 2014; Derntl et al., 2009; Feinberg et al., 1986; Getz et al., 2003), some proponents have indicated that emotion recognition deficits in BD may be isolated to specific emotions (e.g., Summers et al., 2006). For example, Bozorg et al. (2014) found bipolar patients to be slower and less accurate, than controls, in identifying angry facial expressions. Similarly, Lembke and Ketter (2002) found inaccuracies in identifying fear and disgust.

Other studies (Getz et al., 2002; Goghari & Sponheim, 2013; Kim et al. 2009; Wilder-Willis et al., 2001) found individuals with BD have slower response times to completing their emotion recognition tasks when compared to controls. However, Getz and colleagues (2002) found that presentation time for completing tasks did not affect BD participants' performance across three tasks with different presentation times. Others have found that individuals with BD show a misattribution of emotions. For example, Hoernagl and colleagues (2011), and Goghari and Sponheim (2013) found that sadness was misrepresented as anger. Harmer and

colleagues (2002) and De Almeida Rocca and colleagues (2009) found that fear was misrepresented as disgust and anger, respectively.

These inconsistent findings might be explained in terms of methodological weaknesses and limitations, such as the various tasks with which perception of emotion is measured and the inclusion of poorly matched control and patient groups. Furthermore, sample size of previous research has been small (Gur et al., 1992), with some studies using 10 and fewer subjects in their samples, (Chen et al., 2007; Foland et al., 2008; Lennox et al., 2004; Pavuluri et al., 2007; Rubinow & Post, 1992) which impairs the generalisability of the conclusions and causing different result discrepancies.

Recent findings (see Pujam et al., 2015) have proposed that once recovered, some individuals with BD can achieve full integration into social and professional competence and have the possibility of holding jobs, because social judgment and strategic decision making are essential tools in employment. Consequently, it is important to research perception of emotions in BD, not only on account of its clinical implications, but because it will also aid in the broadening of the current knowledge of individuals with BD, particularly on social adjustment (Samame, Martino & Strejilevich, 2012). This is crucial because according to Mayer and Salovey's (1997) four-branch EI model, successful emotion perception is the first step towards becoming emotionally intelligent and research on individuals with BD have been inconsistent as they provide evidence that suggest there may be substantial variability across individuals with BD in facial affect recognition (Fulford et al., 2014). Therefore, it is important to research the extent of emotion recognition impairments in BD.

4.2 Aims and hypotheses

The previous literature has highlighted that emotion perception is of particular importance in understanding EI (emotional intelligence) in individuals with BD because it is core impairment in the disorder. However, very few studies have examined facial emotion recognition ability in individuals with BD. As noted previously, most studies that have researched facial emotion recognition in individuals with BD have examined other clinical samples such as schizophrenia using just BD groups as a psychiatric control group (see Bellack et al., 1996; Bozikas et al., 2006a; Daros et al., 2014; George et al., 1998), it is important to research the subject matter in BD when compared to controls.

The main aim of the experiment was to assess the ability of participants to recognise emotions from facial expression based on the six universally recognised emotions: happiness, sadness, anger, fear, disgust and surprise (Ekman & Friesen, 1975). The experiment was conducted to determine if participants can correctly identify emotions when looking at pictures of faces, and to find out if participants with BD differ in their accuracy and speed of recognition of face emotions when compared with the controls. The result of the TAS-20 (Bagby et al., 1994), in the quantitative study in chapter three (section 3.5.3) informed the design of this experimental study. According to the result of the TAS-20, individuals with BD had difficulty identifying their feelings when compared to the controls.

To explore the aim of the experiment study, a face emotion recognition experiment was administered to all participants. Participants' performance on this task was measured using emotion recognition accuracy (% correct), misattribution (incorrect responses), and response time (ms). It was hypothesised that the participants with BD would perform less accurately than the typical controls in emotion recognition accuracy. Based on previous research, it was further hypothesised that the participants with BD will have more emotion misattributions than the typical controls. It was also hypothesised that the individuals with BD would have slower response times in completing the tasks when compared to the control group.

4.3 Method

4.3.1 Participants

Thirty-five (participants with BD $n=20$; controls $n=15$) participants who had consented to participating in the interview study of this thesis (see chapter 5), also participated in this experiment. Further information on participant characteristics can be found in chapter 2 (section 2.2.1) of this thesis.

4.3.1 Materials and procedure

A total of 36 facial emotional expressions was selected arbitrarily from the Radboud face database (RaFD-Langner, et al., 2010, <http://www.socsci.ru.nl:8180/RaFD2/RaFD?p=main>). The RaFD was chosen for this study based on the high recognition of the intended facial expressions of the validation study by Langer and colleagues (2010). In their study ($N= 276$) students from the Radboud University rated all frontal images with respect to the shown facial expression, intensity of expression, clarity of expression, genuineness of expression,

attractiveness, and valence at 82% agreement rate. Permission to use emotion expression faces for this experiment was granted by the owners of the Radboud faces database. See more details in Chapter 2 (Section 2.3.1) of this thesis.

4.4 Data analysis

A 2 (Group: BD, Control) X 6 (Emotion: Happy, Sad, Surprise, Disgust, Anger, Fear) mixed ANOVA was used to measure accuracy and response times. The first independent variable was participant status (BD vs. typical controls). The second independent variable was emotion, with happiness, sadness, anger, fear, disgust and surprise as the six levels (see Table 13). The dependent variables were emotion recognition accuracy (%) and response time (milliseconds). A two-way multiple analysis of variance (MANOVA; Pillai's Trace) was used to measure emotion misattributions. The SPSS software program (version 24.0) was used for data analysis and significance level was set at $p < 0.05$.

4.5 Results

4.5.1 Emotion accuracy

A 2 (Group: BD and Control) X 6 (Emotion: Happy, Sad, Surprise, Disgust, Anger, and Fear) mixed ANOVA for emotion accuracy was performed. The assumption of sphericity for the two-way interaction was not met, as assessed by Mauchly's test of sphericity, $\chi^2(14) = 32.89, p = .003$. Epsilon (ϵ) was 0.72, as calculated according to Greenhouse and Geisser (1959) and was used to correct the repeated measures ANOVA. Use of the Greenhouse-Geisser correction was based on the research of Maxwell and Delaney (2004) which suggested the Greenhouse-Geisser correction be used if estimated epsilon (ϵ) is less than 0.75.

There was no significant main effect of group [$F(1, 33) = 0.06, p = .93, \eta^2 = .00$], suggesting no difference in accuracy in both groups. There was no statistically significant interaction between group and emotion, [$F(5, 165) = 0.64, p = .64, \eta^2 = 0.19$]. There was a significant effect of emotion type [$F(5, 165) = 32.46, p < 0.001, \eta^2 = 0.49$] across both groups. Table 13 shows descriptive emotion accuracy in both groups (Figure 5).

Table 13: Showing percentage emotion accuracy for participants

Emotion	Mean	SD
Happy	87.62	20.75
Sad	80.47	23.74
Surprise	70.47	24.95
Disgust	60.95	27.40
Anger	39.52	28.32
Fear	34.76	29.25

Note: SD = Standard Deviation

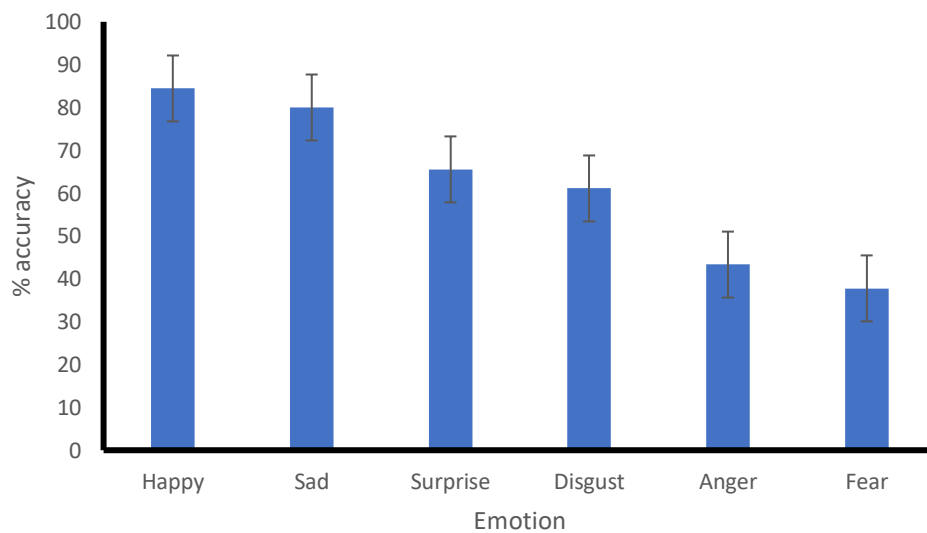


Figure 5: Showing percentage accuracy for both groups at 95% CI interval.

4.5.2 Errors (misattribution of emotion)

Emotion misattribution variables (corresponding to the incorrect answers for each emotion type) were used to study a specific pattern of misattribution for emotions in the tasks for both groups, as presented in Table 14.

Table 14: Emotion misattribution variables

Happy	Sad	Surprise	Disgust	Anger	Fear
Happy- as- sad	Sad – as- happy	Surprise-as- happy	Disgust-as- happy	Anger-as- happy	Fear-as-happy
Happy- as -surprise	Sad- as- surprise	Surprise-as-sad	Disgust-as- sad	Anger-as- sad	Fear-as-sad
Happy- as- anger	Sad- as- anger	Surprise - as- anger	Disgust-as- surprise	Anger-as- surprise	Fear-as- surprise
Happy- as- disgust	Sad-as- disgust	Surprise- as - disgust	Disgust-as- anger	Anger-as- disgust	Fear-as-anger
Happy- as -fear	Sad- as- fear	Surprise-as- fear	Disgust-as- fear	Anger-as- fear	Fear-as-disgust

Emotion misattribution variables were analysed using a two-way multiple analysis of variance (MANOVA; Pillai's Trace). Due to the large number of dependent variables ($n=24$) and the small sample size, the model did not survive correction for multiple comparisons. Thus, a MANOVA was performed instead. The MANOVA for the group difference in misattributions of anger was significant [$F(5, 29) = 2.89, p = 0.03, \eta^2 = 0.33$]. Individuals with BD made significantly more misattributions of anger compared to the controls. Furthermore, the anger as disgust misattribution was significant (see Table 15), [$F(1, 33) = 5.19, p = 0.02, \eta^2 = 0.13$]. Individuals in the BD group made significantly more anger-as-disgust misattributions compared to controls.

Table 15: Anger facial emotion misattributions in BD and control groups

	BD	Control	<i>F</i> -value	<i>p</i> -value
	Mean (SD)	Mean(SD)		
Anger-as-happy	0.05 (0.22)	0.20 (0.41)	1.90	0.17
Anger-as-sad	1.50 (1.05)	1.53 (1.76)	0.05	0.94
Anger-as-surprise	0.65 (0.81)	0.47 (0.64)	0.52	0.47
Anger-as-disgust	1.00 (0.85)	0.40 (0.63)	5.19	0.02
Anger-as-fear	0.20 (0.41)	0.20 (0.25)	1.21	0.27

Note: BD= Bipolar Disorder, SD= Standard Deviation

4.5.3 Response time

A 2 (Group: BD, Control) X 6 (Emotion: Happy, Sad, Surprise, Disgust, Anger, Fear) mixed ANOVA for response time was performed. Mauchly's test of sphericity indicated that the assumption of sphericity for the two- way interaction has not been violated, $\chi^2(14) = 15.47$, $p = .34$. There was no significant main effect of group [$F(1, 33) = 3.26$, $p = .08$, $\eta^2 = 0.90$], suggesting no difference in reaction times in both groups. There was no statistically significant interaction between group and reaction time, [$F(5, 165) = 4.11$, $p = .82$, $\eta^2 = 0.12$]. There was a significant effect of response time [$F(5, 165) = 0.40$, $p = 0.01$, $\eta^2 = 0.11$], across both groups. Table 16 shows descriptive response times for participants in both groups (Figure 6).

Table 16: Showing average response time for participants

Emotion	Mean	SD
Sad	1232.11	383.01
Happy	1272.60	347.38
Disgust	1295.61	264.64
Surprise	1414.96	451.90
Fear	1494.70	409.47
Anger	1542.77	504.12

Note: SD= Standard deviation

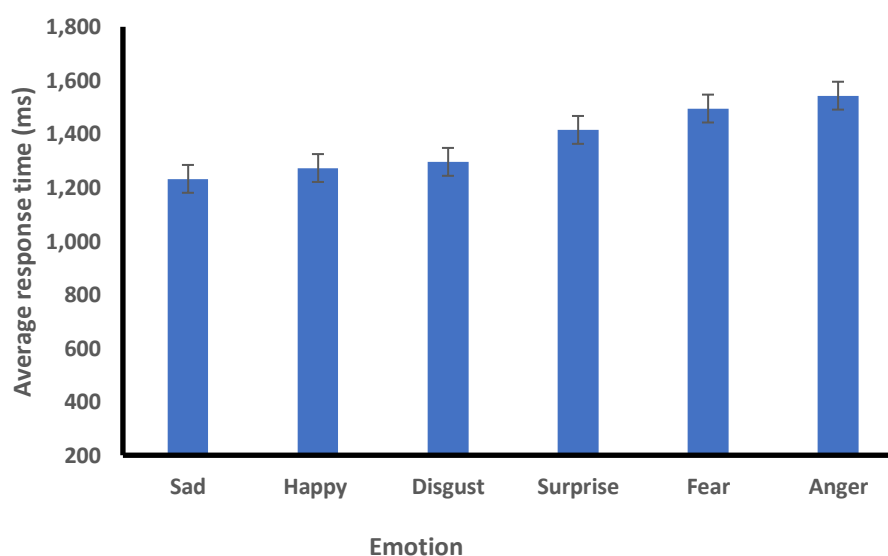


Figure 6: Showing average response time for both groups at 95% CI interval

4.6 Discussion

This experiment measured the accuracy of identifying emotions in emotional face stimuli, response time for identifying these emotions and emotion misattribution among the groups (BD and typical controls). The ability of participants to recognise emotions from facial expression was measured based on the six universally recognised emotions: happiness, sadness, anger, fear, disgust and surprise (Ekman & Friesen, 1975).

The key findings from this experimental study were that there was no difference in the accuracy of facial emotion recognition between BD patients and typical controls. There was also no group difference in the response times of participants. Lastly, the participants with BD had more misattributions of anger to other emotions. Specifically, participants with BD made more anger as disgust misattributions when compared to controls.

The hypothesis that participants with BD would perform less accurately than the typical controls in emotion recognition accuracy was not supported. This is not in agreement with the studies of Gray et al. (2006) and Almeida et al. (2010) who found impairments in emotion recognition accuracy of participants with BD when compared to controls. However, our findings are consistent with those of Almaturo et al. (2016) and Getz et al. (2002), who found no group difference in facial emotion recognition accuracy of their participants with BD and controls. Since no diagnostic measures were completed before the experiment, we cannot ascertain the current mood states of the participants. There is a possibility that most of the BD participants were euthymic or in remission at the time of the study, since research (Lembke & Ketter, 2002; Pujam et al., 2015; Samame, Martino & Strejilevich, 2012) has found euthymic participants with BD not to differ from control in accurately identifying facial emotion.

The hypothesis that the participants with BD will have a slower response time in completing the tasks when compared to the control group was not supported. Response times at which individuals with BD have recognised face emotions have not been documented by many studies. Previous studies (Goghari & Sponheim 2013; Kim et al. 2009) are not in agreement. They found participants with BD to have a slower response time to identifying emotions when compared with controls. The present study is in agreement with the study of Getz et al. (2002) that found no difference in the response times of their BD participants when compared to controls. Again, since no diagnostic measures were completed before the experiment, we cannot ascertain the current mood states of the participants with a possibility that most of the BD participants were either euthymic or in remission at the time of the study.

Lastly, the hypothesis that participants with BD will have more emotion misattributions than the controls was partially supported. The results indicated that the participants with BD had anger misattributed to other emotions more than the control group. The results of this experimental study are consistent with those of Lembke and Ketter (2002) and Hoernagl and colleagues (2011). They found worst overall emotion recognition in their participants with BD when compared with controls, as they mostly misattributed disgust as anger. An improper labelling of anger and disgust might lead to interpersonal rejection (such as job termination, loss of relationship, and stigmatization) and pose a risk to social threat (Hoernagl et al. 2011). In social interaction, if an observer is uncomfortable with how the other person expresses themselves, they might not react to such emotions suitably. Furthermore, several studies (Lembke & Ketter, 2002; Rocca et al., 2009), have found that individuals with BD have an impaired capacity to recognize negative emotions, such as anger. The finding of emotion misattribution in individuals with BD is also supported by previous research on other psychiatric disorders such as schizophrenia and schizoaffective disorder. Premkumar and colleagues (2008) found their schizophrenic participants to misattribute negative emotions. In last, performing accurately on tests of facial affect requires a compilation of attentional, executive and emotional abilities (De Almeida Rocca et al. 2009). Thus, it is of no surprise that individuals with BD have some emotion misattributions as they have been known to have attentional and emotional difficulties (Getz et al., 2002; Hoernagl et al. 2011).

4.6.1 Limitations and recommendation for future research

Facial emotion recognition tasks that assess emotion perception have been criticised because they use static facial stimuli and require subjects to either match (matching paradigms) or name (labelling paradigms) pictures of posed facial expressions (as is the case in this study) according to the emotions displayed (happiness, sadness, anger, disgust, fear, and surprise). Critics have argued that the tasks fail to emulate the range of emotions and the varying intensity of expression that people experience in real-life situations (Schaefer et al., 2010) which might in turn affect the result of the study. Since face emotion recognition task has been criticised for displaying static emotional expressions which possess an unrealistic character (Derntl et al., 2009) as is this study, there is a likelihood that this may accounted for the lack of difference in emotion recognition accuracy between BD patients and typical controls found in the current study. Some critics (Adolphs, Tranel, & Damasio 2003; Fujimura & Suzuki 2010) have instead suggested that dynamic facial stimuli should be presented to participants. However, some other

studies found no effect on performance of participants, regardless of whether dynamic or static stimuli were presented for facial emotion recognition tasks (Fiorentini & Viviani 2011; Katsyri, Saalasti, Tiippana, von Wendt, & Sams, 2008) or face identity tasks (Smith, Dunn, Baguley and Stacey, 2016). In order to recreate a more natural environment, the use of whole body stimuli is recommended for future research.

Another limitation in this research was the modest sample size in each of the groups (BD and control). Accordingly, this novel exploration of the topic suggests that further larger scale exploration is warranted in the future. Furthermore, medication has also been found to impair facial emotion recognition abilities, (Harmer et al. 2004; Lawrence et al. 2002). Venn et al. (2004) found that among typical controls, administration of benzodiazepine impairs cognition of anger, administration of propranolol leads to increase in reaction time to recognize sadness, and administration of citalopram and reboxetine reduces perception of negative expressions, there is therefore a possibility that pharmacological agents could have an effect on the neural circuits responsible for emotion recognition (De Almeida Rocca et al. 2009). At the time of this experiment, all participants with BD were on medication; it could not be determined if medication had an effect on task performance. It is recommended that future studies should measure the effect of medication on face emotion recognition in individuals with BD.

This experiment study did not measure the effect of age, education, affective symptom severity, age of onset of BD or number of previous episodes. It would be highly informative to address these distinctions in future studies with larger samples. Collecting the data at each phase would have been the best way to conduct this experiment but this was not possible, so a compromise was made to collect data following the interview study as it was the second meeting with participants after an initial meeting to collect questionnaire responses. This had implications for what could be measured, what could be reported about the groups (BD and controls) and the small sample sizes in each group. It could not be determined whether participants were experiencing mood symptoms of BD or euthymia. Prior to the experiment study, participants did not complete a symptom diagnosis questionnaire. It is recommended that future studies should measure the effect of mood symptoms on emotion recognition. Future longitudinal studies should address this issue raised across mood states.

4.7 Conclusion

This study adds to current research on emotion recognition in BD. For example, the findings suggested no group difference in emotion recognition accuracy in individuals with BD when compared to controls. Although, no group difference was found, the response times for facial emotion recognition has also been reported, this is an aspect of research that previous studies have failed to report. This is important because, as well as knowing whether participants got accurate or inaccurate responses, it is also important to know the response times of the emotions. Lastly, based on the result of this experiment, this study found excessive misattribution of anger in participants with BD when compared to controls, which is also in line with previous research (Goghari & Sponheim, 2013). The result of this study of not finding group differences in facial emotion recognition accuracy highlights the importance of accounting for mood symptoms in facial recognition tasks, to examine the effect of mood on emotion recognition particularly for mood disorders such as BD.

Chapter 5 (Study 3)

Understanding positive and negative emotions in individuals with bipolar disorder: A qualitative investigation

5.1 Introduction

To gain in-depth knowledge on the effect of positive and negative emotions on EI in individuals with BD, a qualitative study using semi-structured interview was included in this research work. This choice was made because utilising more than one methodological approach could improve the quality of knowledge obtained on the topic to be researched (Pincus et al., 2006), and thus it is advantageous to use mixed methods (Higgs & Titchen, 1995). In addition, a qualitative study will enable gaining more insight to the lived experience of individuals with BD. A qualitative method of data collection in a mixed method research has also been suggested to be complementary to quantitative research because it provides enlightenment on the processes underlying quantitative associations (Thompson, Kent, & Smith, 2002), e.g., it can provide additional information to the results found in the questionnaire based quantitative study presented in chapter 3 of this thesis.

The main aim of this qualitative study was to explore abilities to understand and make sense of positive emotions and negative emotions, in people with BD and controls. BD has a profound influence on an individual's mood, emotions, energy, and social functioning (Wharne, 2015). The literature review in chapter 1 of this thesis identified that individuals with BD experience irregular extreme mood swings of positive and negative emotions usually between periods of normal emotional functioning, but often with some symptoms of the BD phases remaining (Mitchell & Malhi, 2004). This qualitative study aims to gain insight into how individuals with BD understand and describe positive and negative emotions in comparison to people in the general population.

Researchers have documented internal factors such as mood state as affecting the ability to recognise positive and negative emotions in individuals with BD (Lembke & Ketter, 2002; Harmer et al., 2002; Hofer et al., 2010), yet very little research has documented other factors in the individuals life that might contribute to impairments in recognising emotions (Johnson et al., 2007). Research that has documented internal factors as affecting ability to perceive and understand emotions in individuals with BD have shown conflicting findings; while Yurgelun-Todd et al. (2000) reported deficits in recognition of fear and disgust among persons with

remitted BD, Lee et al. (2013) did not report such deficits. However, Harmer et al. (2002) found some evidence of recognition of certain emotions. The variability in the evidence suggests that there may be substantial variability across individuals with BD in their ability to identify and understand emotions (Fulford et al., 2014). Since individuals with BD can maintain daily activities (e.g. maintain relationships and have employments), it is important to compare their lived experiences with controls (individuals in the general population) as this will allow clinicians and researchers to understand the context under which interventions can work and how different ways of implementing an intervention lead will to successful outcomes (Kane, Lewis, Williams & Kahwati, 2014).

This study used a deductive thematic analysis (TA) to investigate how participants relate to emotions. A deductive TA was chosen as an appropriate research method for this study because allows the investigator to organize data, connect themes and corroborate findings in the data (Crabtree & Miller 1999), it also allows a detailed analysis for aspects of the data collected. Additionally, a deductive TA is a qualitative method of analysis that differs from other qualitative approaches, e.g., Interpretative Phenomenological Analysis (IPA) and grounded theory in the way the realities and experiences of participants are reported (Boyatzis, 1998). Furthermore, a deductive TA allows the researcher to interpret data and to make sense of the participants' experiences in their own words with a philosophical framework (Fereday & Muir- Cochrane, 2006).

Additionally, a deductive TA is theory driven (Braun & Clark, 2006; Crabtree, 1999), it uses themes to capture a common, recurring pattern across a dataset, clustered around a central organising concept. The theme tends to describe the different facets of an idea and demonstrates the theme's patterning in the dataset. According to Blacker (2009), a deductive TA provides rich, detailed and complex data. Furthermore, the use of a deductive TA in this research allows for analysis of data from both the control and individuals with BD. The results will present similarities and differences between the participants' perspectives and allow readers to obtain a global view of positive and negative emotions in the participant groups.

5.2 Methods

5.2.1 Participants

Thirty-five ($n=35$) participants participated in the semi-structured interviews, approximately half of them were individuals with BD ($n=20$) and the other half were controls

($n=15$). Participants of this study were recruited from the sample of participants that had taken part in the quantitative study. The participants' names have been changed in order to ensure anonymity and confidentiality. The ages of the participants ranged from 18 to 69 years old (mean= 38.5 years, $SD=16.7$). Further information on participant recruitment can be seen in section 2.2.

5.2.2 Materials and Measures

The qualitative data was collected through one to one semi-structured interviews held in booked public rooms in the local area of the participants. This style of interviewing was selected for its flexibility and because it enables rapport to be developed, allows participants to feel relaxed, think, speak and be heard; and is well suited to in-depth and personal discussion (Reid, Flowers, & Larkin, 2005).

The interviews were audio recorded, with all interviews lasting between 45 minutes and 1.5 hours. The interview captured and explored participants' experiences and perspectives on positive and negative emotions. Following the interviews, the audio recordings were transcribed verbatim. The interview schedule provided initial guidance and prompts, but if any seemingly poignant topics arose, participants were prompted for further information. The participants were encouraged to dictate the direction of the interview as comfortable as they could and told to explore topics beyond the interview schedule. All data were anonymised and stored confidentially. All names in this write-up have been changed to safeguard participant's confidentiality. Further details can be found in section 2.4 (chapter 2) of this thesis.

5.2.3 Analytic procedure

The data from the interviews were transcribed manually from the audio recording into written documents by the writer of this thesis, they were read multiple times to be intimately familiar with contents. This procedure was repeated for each participant's interview. Each text was worked through line by line to identify themes. Transcripts were read again and the initial encounter with texts and thoughts that appeared significant were noted. The important features of the data that was relevant to answering the research question and the relevant data extracts were coded for later stages of analysis. The codes were then examined to identify the broader themes for each participant in both groups (Bipolar group and controls). Themes that emerged

from a majority of the control group transcripts were identified and retained, followed by the themes of the individuals in the bipolar group. The themes for each group was then checked against the dataset to determine that they represent the content of the data. The themes were then combined to tell a story of the data. The themes of the transcripts were verified by the director of studies of this PhD thesis, who is a clinical psychologist.

The emergent themes were constructed into groups that brought together sub-themes that had conceptual connections. This resulted in a table of themes, their sub-themes, and references to the original transcript quotes. The table of themes was then translated into a narrative accompanied by supporting quotes from the interview transcripts

5.3 Results

The themes from the analysis of the transcripts of both groups are presented below; Three combined themes emerged from the analysis of both groups. Within each of the emergent themes are subthemes, which are presented in Table 17 below.

Table 17. Theme table for qualitative analysis

Emergent themes and subthemes	
Emotion recognition	Recognition of negative emotions, Lack of recognition of positive emotions, Recognition of emotion in others, Lack of awareness of transition between emotional states.
Psychological wellbeing	Childhood and Life experiences, Suicidal episodes, Hope/Hopelessness concerns about the future and Loss of livelihood and Standard of living (for example jobs/ business, social and emotional functioning).
Psychological states	Irritable state, Emotion state control, Loss of control of manic and depressive states

5.3.1 Emotion recognition

The first major theme that emerged from both the BD and control groups was recognition of emotions. For the purpose of this analysis, recognition of emotion refers to the ability to understand and make sense of positive and negative emotions. The different self-report experiences reflect participants' ability to recognise emotion. Sub-themes that emerged for emotion recognition are; recognition of negative emotions, lack of recognition of positive emotions, recognition of emotion in others and lack of awareness of transition between emotional states.

5.3.1.1 Recognition of negative emotions

Fifteen (15) participants in the BD group reported that they recognised negative emotion (e.g. anger) in themselves. Seven individuals recognised these emotions as soon as they experienced it. The transcripts showed a pattern in identifying feelings of unhappiness a lot of the time, which in turn impacts on participants emotional and social functioning.

“I notice more negative feelings actually. When I am feeling good, I sort of doesn't [referring to not noticing positive emotions] see it. It is more of a sort of a good feeling that I'm a go with it. I like it. However, I do have to watch out... The sadness I notice because the day changes and I know”. Lola (Participant 066)

Some of these BD participants also reported having what they felt were appropriate emotion in particular situations, however they reported that they often felt that the emotional experience or the emotional expression was out of proportion.

“I will be emotional [referring to sadness] about things that it is right to be emotional about. But again it is [my sadness] out of proportion. It is just too strong. But then is the sharpness of the emotion that I think is problematic”. Darren (Participant 032)

There was also a pattern of spontaneous recognition of anger that often was accompanied by reflection, which sometimes leads to a sense of remorse for action.

“But from time to time things build up. And I've from time to time in my life, exploded in anger. But I did not lose my temper; I lost control. But I always regret that”. Derek (Participant 083)

Eight (8) participants with BD also reported that they felt they had no control over their anger, they either experienced it suddenly or were unable to stop it from happening once they realized the emotion was being expressed.

“Anger seems to be the kind of emotion that quickly overtakes my brain. I’m less able to monitor myself when I am angry. It just kind of overrules me...I think my nature is to express it by raising my voice or shouting if I’m angry. I might be quick-tempered sometimes and I feel bad afterwards about displaying anger in a way”. Gary (Participant 086)

They also reported a feeling of entitlement and right to express anger; they attempted to justify their expression of anger as necessary for their emotional health even when they saw its expression was inconsistent with the event that is happening.

“There are different kinds of anger. There is righteous anger. I actually feel that sometimes I’m right to be angry. But people feel that’s too much. And, I’m not sure. Sometimes it’s really good to be angry. And I’m not using violence or something like that. And sometimes I know that my anger is disproportionate to what’s happening. But then I also think to myself ‘sometimes when my feelings are out of proportion or they are triggered by certain something, it’s not all about that.’ And the example I give is of crying. So, some years ago I went to the funeral of the estranged father of a family friend. She’d been estranged from her father whom I’d never met for many years, and only become recently reconnected. And I remember standing in the back, and I cried and cried. I’ve never met the man. But I was sad for my friend. But I knew I wasn’t crying for him. I was in a setting where it was totally acceptable for a man to cry. I was crying about something else. What was it? I’m not sure. It had to be cried about. So what I want to say is that sometimes the energy of, for example, anger is poked by one particular thing. But it only allows it than for something else to come that I’m not sure about, that I cannot express. But it does not stop the anger of the moment”. Darren (Participant 032)

This participant reported the feeling of preventing a reoccurrence of expression of anger

“Now I am recognizing what it is [anger]. Before, I was not. However, I do not have the tools or the strategy to stop it happening again, or to be less severe, or less often, and that reflection in itself that this is what it is harmful to me on its own. This insight of what it is just makes me feel bad”. Mel (Participant 125)

Four of the participants with BD that experience anger attempt to minimise the intense feeling of regret that might accompany the reflection of expressing anger out of proportion.

“I don’t often lose my temper. The phrase ‘lose my temper’ is in itself interesting in that to lose one’s temper really means to sort of lose control of oneself. But from time to time things build up. And I’ve from time to time in my life, exploded in anger. But I did not lose my temper; I lost control. However, I always regret that”. V (Participant 555)

“It happened when it happened [referring to anger], I know that if it was now, I will probably not have responded in certain ways”. Jane (participant 013)

5.3.1.2 Lack of recognition of positive emotions

Recognising emotions and expressing positive emotions are important for social skills. An inability to do this would make people worried, particularly people who experience emotions intensely such as individuals with BD. Twelve (12) participants with BD reported the inability to recognise positive emotions. They did not recognise when they experience positive emotions such as happiness.

“The emotion that I do not recognise is happiness. That seems to be an emotion that kind of eludes me. When it seems that when you go looking for happiness, you will not find it. It is just something that happens spontaneously you know, because of certain circumstances. But if you can go searching for it or try to make it happen then I’m at loss. I find it hard to find happiness sometimes.” Gary (Participant 086)

Sometimes, participants were aware of feeling happy but made a conscious effort not to express the emotion and avoid expressing happiness.

“I have never thought about that. I suppose I do not express happiness. I might dismiss it quickly. I explain negative feelings more”. Ruby (Participant 002)

Furthermore, denial of the existence of happiness was reported by some of the BD participants. There was some evidence that they were unwilling to recognise positive feelings because they knew that, for them, positive emotions were shortlived. In addition many feared having a manic episode which usually had treacherous consequences that was out of their control. There is an aftermath to mania that is a sense of depersonalisation such that the person

experiencing knows they behaved in particular ways but cannot reconcile that behaviour with their personal sense of self-values. Furthermore, the post-mania experience of attempting to repair damage resulting from behaviours during mania can be challenging. Fear of these complicated experiences then affects their acceptance of positive emotions even when the positive emotion is experienced.

“I mean obviously there have been times where things have gotten on top of me, and they have had a detrimental effect like, I have done things when I have been on a high, and I have done things that have led to disastrous consequences....I don’t want to be in that place again, it would be better not to go through it at all” Kim (Participant 106)

There is also an awareness that a positive feeling such as happiness evokes a negative feeling such as fear and anger. This awareness is a result of unfavourable previous experiences.

“But happiness, I feel good, and I am doing a lot more, and I am more active and then it all happens for about three or four days, and it will all go. And I’ll not be quite happy again, and then my husband will notice, and then I start getting afraid of getting too happy, and I really get annoyed about that, that I have to be afraid of being happy”. Lola (Participant 066)

Therefore, many consciously minimise the reaction to positive emotions because of past experiences. Expression of positive emotions are usually hindered by an awareness that emotions can escalate to unwanted situations.

“Yeah. I probably don’t have too many positive feelings. But in some ways, I am a bit more guarded about expressing positive feelings than about negative feelings. I’m kind of more guarded. I think because I’ve had bipolar, and because in the past when my mood has become elevated and I am probably very pleased about things and hyper-reactive, it’s led me into a lot of trouble. So in a sense I kind of modulate myself down when happy things start occurring”. Gary (participant 086)

On the other hand, the control group had a pattern of recognition of positive emotion and would express this emotion in the social environment and with people around them.

“When I am happy I would rather express it because if I am happy, I just want to scream my head off. I tell people if I need to”. Sam (Participant 101)

Control participants know when they are happy. Positive emotions such as happiness are lived; it is an emotion that is usually contagious. People let others know when they experience it and would want to share their experiences and express their emotions without having detrimental consequences.

“I know when I am happy, I recognise it as it is not a feeling that can be missed, people around me knows, my family, friends, everyone knows when I am happy, it is contagious too isn’t it”? Jerry (Participant 011)

Control participants were eager to let others know how they felt when they experienced positive emotions. It came naturally to share the feeling that comes with being happy with others as this is perceived to be socially acceptable than when the emotion is negative.

“Yeah. I’d say, happiness obviously. You would find it easier to share a good news than having to tell people you’re sad, or you’ve got a fear of something because that makes you vulnerable to some people”. Dot (participant 029)

5.3.1.3 Recognition of emotion in others

Recognising emotions is important for various reasons; they provide information about the environment (Dimberg, 1997), they provide information about the communicators’ behaviour (Owren et al., 2005) and they provide information necessary to make a successful social interaction (Preston & de Waal, 2002; Fiske, Gilbert & Lindzey, 2010). Some BD participants perceived that they had strong intuition and recognised emotions of friends, family, and people in their social environment. A possible explanation for why this happens is because individuals with BD tend to shift attention away from themselves to other people.

Six (6) of the BD participants attributed recognising emotions in others to their job. They are able to recognise emotions in others because it is a requirement in their job. This skill is transferred into their social interactions with family and friends.

“Yes. I think I’m a mental health worker...and it is a key component of the skill of my job that I can empathise with people, understand, and help interpret their feelings and stay with their feelings, not be frightened...So yes it is a key part of what I do, and I have to have sufficient personal resilience to be able to manage that”. Jamie (participant 050)

“I could tell when people are depressed or something is bothering them – I get this kind of thing. Because I do theatre work, and sometimes I work with kids, and I can pick up the sensitive ones or things going on with them. And then you find out I kind of latch on to very sensitive, intuitive people”. Ruby (Participant 002)

Nine (9) of the BD participants reported recognition of emotion in family members. The lived experiences of individuals with BD enables them to have more awareness of other peoples’ emotions because of the intense emotions that they experience as a result of the phases of BD. Members of the family are one’s first contact, therefore, it is more likely to observe their emotions and this observation is emphasised in individuals with BD because of their experience of intense emotions.

“My partner suffers from the same condition. I think bipolar probably does impair some of those emotional responses. I tend know how she feels and when she is feeling different”. Darren (Participant 032)

“I would like to think that I am good at it... My mum used to say I’m a mind reader. And I always believe that I know what other people particularly about me”. Jane (participant 013)

Some of the participants with BD also reported recognising different emotions in other people. However, while some participants admit that there is a possibility of being inaccurate, others are poised about their ability to recognise these emotions.

“So I have this notion that I am good at reading people’s mood even though the main signal I am getting is from their expression or their activity or the way they react to me... So I tend to think that I’m quite good at that. But I’m open to the notion that I could be completely wrong. And that’s part of the reason why I wanted to participate in this particular exercise... I can reflect to them. I can reflect my ideas about how they feel”. E (Participant 205)

“I would think all of those [referring to all six emotions] I think I tend to find those emotions in other persons whether I knew them well or not. I think I would be able to read what their emotion was through what I see with my own eyes and hear with my ears you know or read. I do not think I’m blind to other people’s emotions. In fact, maybe subconsciously it is the first thing you kind of assimilate about a person when you meet them. You make some kind of judgement as to what their emotional state is.

And if anyone was experiencing any of those emotions I think I would be aware of it and react to it”. Mary (participant 068)

All four (4) BD participants getting treatments attributed their awareness of others emotion to their treatment. Interventions such as Cognitive Behavioural Therapy (CBT) are tailored to teach new information processing skills and coping mechanisms as well as reducing anxiety. There is a possibility that individuals with psychiatric disorders such as BD, benefit from such interventions by perceiving their social environment differently after treatment.

“What I would do in such a situation would be to actually have a sort of, kind of a compassionate talk with them and sort of tease about it and say...but I think that it is actually something that I have developed myself through having had CBT...yeah”. Isabel (participant 122)

“I have been through a lot of CBT. So I am very aware of things that I would say I’d be more aware that a lot of non-bipolar people, to be honest”. Darren (participant 032)

Conversely, a participant reported feeling disgust towards people who told him how he feels. Again this could be attributed to the fact that individuals with BD tend to shift attention away from themselves to other people, so attention on them from a third party is not welcomed.

“When people tell me how I am feeling, I normally find that very provocative because normally they only would know this amount. And why are you telling me? Don’t you think I know already? So I find that very provocative. And that might be something to do with irritability and so on.” Ruby (participant 002)

Additionally, control participants recognise emotions from cues and responses of people in their social environment, for example, listening to the tone of voice;

“For anger for example, because the tone of voice change and you know exactly how someone is feeling.” Pat (participant 091)

They also recognise emotions from facial expressions and body language.

“All you need to look at is their face and erm ... how they act towards you. It is evident and obvious, you just kind of like, can tell that this person is in a very good mood or otherwise. You can also know what the person is doing at a particular time, like if they are jumping around for very good reasons or sat quietly on their own, then you kind of like judge by what is going on”. David (participant 206)

5.3.1.4 Lack of awareness of transition between emotional states

Some narratives from participants with BD suggested that they often were unaware of the transition from one emotional state to another. Interestingly, sixteen (16) of the BD participants reported this. Individuals suddenly find themselves experiencing a different emotion at a given time. This situation does not give such individuals a reaction time or a time to think through what they are about to experience especially if the emotional reaction would be distressing. Participants with BD reported that they experienced such transitions as sudden and that they were unable to predict the occurrence of the change of emotion. They would change abruptly and without warning into a different emotion.

“I describe it as going from – I am not a car driver, but it is the only thing that really makes sense to me – going from null to 60 in a moment. It is like my ankle does not have a muscle so that there is no pause for reflexion – And so I will shout, or I will bang on the table. Let’s say for example I am typing something on the computer, and accidentally I press something – that might disappear somewhere. That is an irritating thing, is it not? But I will shout, I will bang the table, that is very typical...But it does not make you feel OK. There is no moment of saying ‘that is annoying, this always happens. Nothing like that. So, nothing saying it is annoying, but I can cope with this. There is no shrug of the shoulders, nothing. And it’s forced, and that is what is so difficult for me to recognise that it’s going to happen and to control it happening’”.
Darren (participant 032)

There is an acknowledgement of a build-up of emotion, but this is unknown until after the transition has occurred.

“It’s too quick. It’s a second. It must be building up somewhere. And that’s my difficulty I suppose”. Gab (participant 010)

Participants with BD that reported irritability had more reports lack of awareness of transition between emotional states from positive to negative emotions rather than the other way around (negative to positive emotion) and this transition was often unpredictable.

“No. It is quite a surprise sometimes when I reflect.... Like today I thought last night and the computer game [after breaking it in anger and using foul language on gamers]..... I own a computer game. I’ve only recently bought it. It is great for days that I’m tired. And you know some people out there making some really negative

comments in your ears when you are playing. People all over the world [online game players]. I think really; it affected me. I took it quite personally. What goes in the actual fact. Why? They are just voices. Last night I felt a little bit upset and I felt quite negative about myself. I was not as good as they were. But I'm thinking about it today. They have been probably replaying it for about four years...It always ends up being negative even when I've been ok before then". Nick (participant 139)

Furthermore, three of participants with BD feel the positive emotion, so they let it run its course without knowing when they transition between emotional states.

"I do not always know....Usually, after the high comes the low. But I did not really do anything to try and keep myself at a level. I just go with the feeling because I like the feeling of being high. And I suppose it would only be after the event that I'd realize 'Oh, I have gotten too high.'" Kim (participant 106)

Participants with BD also recognised the occurrence of the emotions immediately it has happened and can reflect on it.

"Transition is so fast. So it is hard to recognise... No. Not straight away. I might be able to reflect on it after it has happened". Nick (participant 139)

"I am not aware of when the transition occurs. But I am aware that a transition has occurred afterwards or when I start to reflect on what happened 5 minutes or 10 minutes ago". Ruby (participant 002)

Nine (9) control participants reported the awareness of the transition from one emotion to the other.

"I do not let anyone spoil my day, once I discover that an event or somebody is trying to change my mood...especially when I am happy, I move away from the situation and that makes me feel better" Dot (participant 169).

5.3.1.5 Summing up the emotion recognition theme

As indicated in the literature review in chapter 1. Emotion recognition is an essential skill towards being an emotional intelligent individual. A lack of emotion recognition skill indicates a lack EI. The first theme of emotion recognition gives insight into the emotional

experiences of people, especially individuals diagnosed with BD and the difficulties they experience with emotion recognition. Many normal emotional experiences tend to be exaggerated to individuals with BD, perhaps because they experience emotions more intensely.

“Sometimes, for example, I will be emotional about things that it is right to be emotional about. But again it is out of proportion. It is just too strong. I’m saying that almost like this is not what I really think...I will cry seriously at the funeral of someone I never knew when they were alive”. Darren (participant 032)

Individuals with BD have factors that trigger different emotions in them such as environment

“Well, I tend to feel better possibly being outside in the open. The setting that I am in sometimes affects my mood in kind of surprising ways. But sometimes I forget about that when things become too much”. Gab (participant 010)

In summary, control participants could identify emotions in them self and others, emotions happened without effort and they also had an awareness of transitioning between emotional states. On the other hand, a difficulty in recognising positive emotions was observed in BD participants, however, they had no difficulty recognising negative emotions. Participants with BD perceived themselves as being able to recognise emotion in others while the controls attributed sharing negative emotions with other people, would be perceived as being vulnerable. Lack of awareness of transition between emotional states was particularly surprising to participants with BD. The change was described as profound with sudden, unpredictable episodes or outbursts of emotional reactions. Participants with BD described the illness symptoms as switches in a heartbeat or an example is like from melancholy to mayhem like the flick of a light switch from off to on.

5.3.2 Psychological well-being

Majority of the participants’ interviews indicated how a good life was important to them. For the purpose of this study, psychological well-being is defined as self- acceptance, personal growth, purpose in life, positive relations with others, environmental mastery, and autonomy (Ryff, & Keyes, 1995). Sub-themes that emerged for the psychological well-being theme are Childhood and life experiences, Suicidal episodes, Hope/hopelessness concerns about the future and Loss of livelihood and standard of living.

5.3.2.1 Childhood and life experiences

Individual experiences shape who we are. The positive and negative events that are experienced by people in their daily life, as well as everything else in between help to mould individual's personalities. According to Kendler et al. (2011), experiences stay with individuals and have an impact on a person's set point as an adult, as such, life events have a significant part to play on a person's emotional expression and experience, he also added that people should be described by what they experience.

Participants' childhood experiences have affected the ways they express positive and negative emotions in both groups. Negative emotions such as sadness and ineffectiveness add to the experience of being mentally ill was also linked to unpleasant childhood experiences. This is evident in fifteen (15) transcripts of the individuals in the BD group. These participants identified experiences in childhood as something connected with their expression of emotions.

"Not everybody shouts, but unfortunately my particular upbringing, my family, my household, I had to shout to be understood I felt, you know, ignored, angry and sad most times. So that is why I have been told to possibly look into anger management or means to control outbursts". Ruby (participant 002)

"Maybe the written word to my mother and father...uhm...relating them to stuff that had happened when I was a child or whatever makes me feel in certain ways [referring to neglect]...again you know...like I was saying how working on record players was like when I was a teenager...you know I did not like it...I sort of relate things like that. Things that make me sad, I would really...uhm...I would kind of be prowling between me and [Sister], possibly [Wife] as well, actually...uhm.... Things that make me afraid". Gab (participant 090)

For some participants with BD, it is frustrating to have family members that they felt lacked an empathic understanding of their condition. The response of others to their symptoms is also important to their wellbeing. This participant described how she chose not to let people know about their BD because of their reactions.

"I would probably pick quite an inexpressive person. But I also would hype my real feelings a lot of the time. And that again goes back to, you know, my childhood... not being able to show your feelings because you are expected not to, and being punished if you did. I could be in the hospital. My mother, for example, was saying to me one time when I was in the hospital, she would say 'I do not understand why you are here.'

And I would say 'well because I am so totally depressed.' And she would say 'but you do not seem depressed; you are so happy. You seem fine.' And so it is very confusing for other people, and it is very frustrating because I can read other people. But then I put up a mask. So they could not read me even if they wanted to. And it makes it very difficult for people I think because then they do not understand when I could be getting angrier and angrier and angrier. And they have no idea. And then I'm thinking 'what are they doing nuts still'? Isabel (participant 122)

Family and friends add to the confusion; they attribute many normal daily emotional experiences to having bipolar disorder. The reactions seemed to be associated with a lack of understanding by others which could include unpleasant comments from close family members.

"My sister once said to me 'you seem a little bit angry today, have you had your medication?'. E (participant 205)

Some participants with BD had childhood experiences that made them feel they were responsible for everything that happened especially negative events. This has shaped their view of the world they live in.

"Well, of course, I could feel that way because from when I was a very small child I was told that everything was my fault. I was responsible for making the rest of the world a better place, you know. And literally, all the weight of the world was on my shoulders. And if I did not do it, then, the world would end. So when you are taught that way even when you know you're thinking that way, it very hard not to think that way and behave according to those thoughts that you're having". Sarah (participant 111)

The intensity of symptoms and distress experienced by individuals with BD with identical symptoms differs; it ranges from different experiences of severe functional loss and distress at one end, through experiences of a good level of adaptation to daily living, and a high level of functioning at the other end. BD participants' lived experiences as a result of their diagnosis has different effects on their emotions.

"Because of the experiences, I have had in the past; I think there is still insecurity there because I lost everything essentially when I became unwell. But I've learnt to be very patient; I've learnt to control my condition. I need the medication to help me. I can still be highly insecure on occasion. But that makes me feel sometimes low and sad. But my life is as good as it possibly could be at the moment". Mic (participant 071)

For some participants with BD that reported the effect of their past experiences, life experiences have taught them how to withstand specific emotions when experienced

“Well, I think my life’s experience has taught me there isn’t very much to fear. There is the fear of physical pain. I’ve experienced intense, extreme physical pain. I fear that. I fear the process of dying because it could be very unpleasant”. Andy (participant 015)

Participants with BD seemed to express feelings of sadness and helplessness that are intensified by the experience of being mentally ill and milestones that were never achieved. One participant, in particular, grieved the loss of the life that might have been if he did not have BD and the effect it might have on him.

“I could have achieved more...It has had a big effect on me in terms of coming to an understanding that my life is finite and that at some point, I would start ageing and would decline, maybe with these conditions. So I have a fear about declining physically and mentally at an age where I might expect to enjoy better health”. Gary (participant 086)

40% (6) of the controls attributed their past experiences to shape their current view of the world and how they express their emotions.

“Everything I have been through, my rough childhood and the experiences while growing has helped me understand the world we live in, I have more sympathy for people.. You know, you don’t know what that person is going through until you are in their shoes. When they cry or laugh, there is a reason. You gotta feel everything with them”. Aaron (participant 204)

For 3 control participants, there is resilience as these experiences are believed to be necessary in the course of their life.

“No matter what the past looked like, that is in my past. It is needed to be where I am today. Though I will not say I am very emotionless but I tell people who wallow in pity when things happen to them, to get up and move on. Life is too short to be unhappy”. Sam (participant 113)

5.3.2.2 Suicidal episodes

Low self-acceptance is characterised by a feeling of dissatisfaction with oneself, childhood and life experiences, personal attributes, environmental factors and feeling of wanting to be a different person than who one is already is. An inability to achieve this has led to devastating consequences such as suicide. Although previous research has attributed suicidal behaviours in individuals with BD to complex interplays of several factors such as genetic, neurobiological and environmental factors (Ghaemi, Wingo, Filkowski, & Baldessarini, 2008), very little is known about possible modifiable environmental factors that could mitigate or attenuate causes of suicide.

All participants in the bipolar group reported experiencing suicidal thoughts at least once at some point in their life

“There comes a point where I think I cannot talk about this, because what good will it do? And ‘what good will it do’ means suicide. [My wife (name withheld)] knows I have had suicidal feelings. She knows I made a suicide attempt in [Year]. She sort of found out about it without me telling her. My parents do not know that”. Darren (participant 032)

More than half (65%) of the participants with BD reported that their suicide attempts occurred at times when they had been in the depressive phase, suicide was seen as a way out of pain.

“The last time I took a hopeless oblivion [referring to suicide], and I said nothing to anyone. I was then violently physically sick. But I did not tell a medical person for over a week. I eventually told my GP eight days later, and someone tried to get me to go to the hospital because of the toxicity of the lithium. But I refused to go. Eventually, the GP came with me to go to have a blood test. By that stage, the drug was at my system and after that, they stopped giving me lithium temporarily. Then they stopped entirely because of my history of suicide attempts. It was too dangerous. So I no longer take lithium. The best thing that ever happened actually, as a result of that somehow, I managed to end up on a drug regime, which has suit me very well. But I did not tell anyone what happened for ages. And I’ve always done that. I’ve never told people when I’ve been very very low”. Jamie (participant 050)

One of the control participants admitted frustration at life events at a time in their life. Suicide was however not an option.

“There was a time when things were bad, I mean, very very bad. I felt like it was just me in this whole world, but I thought to myself, let’s see how this end. At some point, I was in so much pain that it just was a lot, a lot of issues”. Billy (participant 456)

5.3.2.3 Hope/Hopelessness and concerns about the future

There were noticeable differences between participants about how they viewed the future. Some participants with BD were optimistic about future outcomes and had the feeling of continued growth and development as well as being open to new experiences while some participants had doubts about positive symptom outcomes and felt uninterested about life. The control participants were also hopeful even when they experienced stressful situations.

“For me, I awake in the morning feeling concerned and worried about the day ahead, whether I am going to be able to get up for a start, whether or not I will be able to cope with things, not looking forward to things I have to do...So I have a fear about declining physically and mentally at an age where I might expect to enjoy better health”. Gary (participant 086)

The most negative outlook, a feeling of hopelessness and despair was reported by those for whom previous attempts at positive action to change their situation had failed, and coping mechanisms they previously drew upon no longer had an effect. As a result they felt ‘stuck’ and could not perceive how their situation might change in the future.

“I don’t know, I don’t think I can go back to being like I was before, I have attempted this previously and failed terribly. I’m just here and hoping I get the courage someday”. E (participant 205)

On the other hand, some participants that are feeling positive about their treatment have goals in place and feel they are achievable in the near future as their mental health improves.

“With the CBT thing and our support group meetings, I am getting better and hope to go back to what I used to love doing”. Andy (participant 015)

For control participants, the future is mainly hopeful and they express having will and determination to achieve goals, and a way to achieve them is clearly set out.

“I have to do well, actually, things keep getting better and if my current plan to reach my aim don’t work out then there is always a plan B”. Billy (participant 456)

For 4 of the controls, their religion plays a role in how the future is viewed. They find solace in their belief and they hold on to their teachings of hope.

“Are you a Christian? Well as you know [referring to participant recruitment from their church], I am. The Bible gives me hope, no matter what I am going through, this always comes to mind, Colossians 1: 27b, Christ in me, the hope of glory”. Diana (participant 135)

5.3.2.4 Loss of livelihood and standard of living/social functioning

Humans crave a sense of belonging, form and maintain social bonds regularly. Hence, they suffer when these bonds are severed or when they experience a deterioration in their relationships. Loss of livelihood for a period of time or completely, meant that the participants with BD experienced no contact with others. Seven (7) participants with BD commented that as a result of their illness, it has been difficult to work or connect with others, leaving them feeling useless, isolated, experiencing loss of respect and having no value in their social and job environment.

“Depression was my main problem; it has kept me off work. For example, it meant I could not work for three years and so forth... I have no friends as a result”. Darren (participant 032)

“In the last five years, I have been off work for two periods of time. The first was because I was hyper manic and I needed to take some time off work. The second time I was suffering from acute anxiety quite different than being hyper manic.” Sarah (participant 111)

Some of these participants with BD talked about acceptance of the consequences of the loss and understanding that they cannot be the person they used to be prior to diagnosis because BD has made significant changes to their lives.

“Prior to diagnosis and prior to medication, I was very active. However, since diagnosis I have learnt the hard way that I cannot be that person anymore. I cannot go and do 17 to 18 hours on the bike anymore.” Gab (participant 090)

Additionally, a participant with BD blamed himself for the difficulty in managing his life that has led to a loss of social functioning and capacity.

“I have had moments of being high which has led to some reckless behaviour and in the past, it led to me losing a job, which really did affect me quite badly because I knew that it was all my fault. There were no excuses. It was all down to me. So I think for some time after that it really did shatter my confidence, and it took the time to build it back up again”. Jamie (participant 050)

Participants with BD reflected of how the disorder placed barriers on their interpersonal relationships and left them with frustrated interpersonal relationships and the unwillingness to make compromises sustain important ties with others. for example, relationships with family and friends.

“My first experience with bipolar disorder and manic mania or hyper mania were quite intense. And I had an episode of psychosis as well along with it. That was a very difficult time in my life. That was when I was about 30 years of age. And now looking back at that, that was kind of an earthquake in my life you know, in terms of my relationships, my work, where I live, my relationship with my parents, and friends, and other family”. Gary (participant 086)

5.3.2.5 Summing up the Psychological well-being theme

Carmeli, Yitzhak-Halevy and Weisberg, (2009) found highly emotionally intelligent individuals are more likely to experience psychological well-being at a higher level than individuals who are low in EI. They found support for positive associations between EI and the components psychological well-being according to Ryff (1995). An emotionally intelligent individual is more likely to have experienced higher levels of life satisfaction, self-acceptance, and self-esteem than individuals who are relatively low in EI.

The psychological well-being theme in this study seemed to be a pivotal factor in an individual's expression of emotion in both groups (BD and control). It is important that well-being is not limited only to biological explanations but should be a major factor in deciding a good life. A good psychological well-being is characterized by feelings positive of well-being, hopeful view of the future, a positive self-perception and acceptance, and meaningful life experiences. In contrast, a poor psychological well-being is associated with feelings of

hopelessness, distress, lack of control over symptoms, a negative outlook on life in general and loss of autonomy. These life domains interact in a complex and reciprocal way is thereby evoking different emotional responses, for example, positive emotions for positive experiences and negative emotions for undesirable events, e.g. for participants with BD, self-blame was an attribute of living with the disorder that seemed to penetrate their whole experience. Social experiences are important to people's well-being; hence, humans get bothered when they experience lack of belonging and feel disconnected to their social environment. It is particularly painful and sensitive to individuals with BD especially when they are experiencing the depressive phase of their illness (Allen & Badcock, 2003). Participants with BD described varying degrees of social stigma associated with the responses other people in the society including family members to their symptoms but for most it meant that they needed to consider who was informed about their BD symptoms. The stigma was generally associated with a lack of understanding of the symptoms of the disorder.

Bar-On's emotional social intelligence model (Bar On, 1997) refers to optimism (positivity even in the face of adversity and to look at life on a brighter side) as an important component of EI. This was evident in the responses of control participants. For controls, there was evidence of a hopeful view of the future, positive self-perception and acceptance. In addition, negative life experiences were seen as occurrences that prepared them for a positive future. Participants' responses in the interview revealed that the general measures of psychological well-being might fail to address this difficulty and the broad range of domains important to people with BD resulting in increasing symptoms.

5.3.3 Psychological states

Psychological states are important in understanding emotion. An unstable psychological state of an individual will hinder their judgement and knowledge of the self and others whereas a stable state allows the individual to be aware of the self and this will be projected to the outward. The participants' narratives showed that they were aware of experiencing a range of significantly different psychological states, and also how these different states impacted on their expression of emotions. Sub-themes that emerged for the psychological states theme are irritable state, emotion state control, and loss of control of manic and depressive states.

5.3.3.1 Irritable state

For participants with BD, irritable states usually start with temper outbursts that are inappropriate, frequent, and extreme to the situation at hand and is accompanied by negative mood (anger or sadness) between outbursts. The participants explained how the irritability affected them and their relationships. 55% (11) of the participants with BD seemed to view irritability as an aspect of their disorder that they struggled to recognise and is often unnoticed. The sudden outbursts of rage and irritability and the profound sense of anxiety and agitation was particularly an area of concern.

“But it was shocking to me only lately to recognise this, and it was particularly dispiriting because it makes me realise once again that this is a much bigger problem – my mood disorder – than I thought before. Before I thought it was depression, mainly I do not go off and spend the bank account on books and throw money in the street or anything like that. But this irritability, I did not recognise it... My psychiatrist has referred me to a psychologist. I’m going to start about eight to ten sessions to look at this irritability. But it is very dispiriting, and I have not paid any attention to it. It is very bad, and recently, it merely got me in bad trouble. I was very rude to a trainer in a training event in front of lots of colleagues and I didn’t recognise it until the senior manager came to me late at the end of the day and asked me what was wrong...and I was mortified, I was shocked that I could behave towards this trainer in any way. I was rude to her...I would have attacked her for example and...I did not think it was the right training. I was bored by it...And worse still, I recognised it was this kind of irritability and temper that I had not been noticing, I had not been recognising”. Darren (participant 032)

“Yes, I do. It is [Irritability] not a feeling I am comfortable with. But I tend to think that sometimes, maybe I’m dealing with too many things that irritate me or I should just try and maybe let them go. So I find it an uncomfortable emotion, and I’m not sure that maybe sometimes I’m able to deal with it”. Lola (participant 066)

Five participants with BD reported a random expression of an irritable state. This participant reported irritability at situations that had nothing to do with her.

“Things that should not make me curse...It could be a guy getting in a Jacuzzi and sitting there like....Nothing to do with me. Not because of me...irrespective of me...But I still

cringe. And...when I'm getting irritable, it is just little things like that. So it could be things that have nothing to do with me; it could be things to do with me; it could be micro things, something perfectly irritable I might just go...for God's sake. So it is just...sometimes things that have nothing to do with me, and I will show my irritation. It could be drivers I could be tossing with...drivers who are cutting you up or something. I'm sitting in my car getting angry. It does not change them or their behaviour, and it is pointless...sitting in the car alone, shouting. So, it does not help me...it does not change the situation...it doesn't have any impact on anybody but me". Isabel (participant 122)

Irritability also affects participant's thoughts of people and physical activity.

"I express irritation a lot. I express irritation with people, stupidity, religion, and discrimination and things that I despise and dislike". Mary (participant 068)

"I will focus on irritability. And that is one of the reasons I am seeking help from a psychologist... Irritability...It limits my physical ability to walk and so on. I have to be careful not to express my irritability with people whom it would hurt". V (participant 555)

One of the control participants talked about their feelings of irritation, however, they describe their irritable state as appropriate to the event that is occurring at the time of expressing the feeling.

"There was a time on the bus that two people were doing something disgusting behind me, like I had to leave, so annoying! It would be weird to sit through that, watching people do disgusting stuff in a public place like that" Sam (participant 113).

5.3.3.2 Emotion state control

All the participants with BD reported that they were worried about their inability to pre-empt the onset of their mood and emotions that follow as a consequence to that mood. Gaining control often involved the development of coping strategies. Some of these strategies, such as social withdrawal, often provided short-term relief and feelings of safety, but were recognised as being detrimental to well-being and quality of life in the long term. The inability to control moods evoke negative emotional reactions.

“I would rather not feel that way, and I feel frustrated that I cannot alter the way I feel simply by not trying to dwell on it. It just seems to be with me whether or not I like it”. Andy (participant 015)

“But then I still get frustrated when it comes to that level [after being on my own for a while] where it becomes intense like it is overwhelming. I know what’s happening, and I know why. But it is still like had to cope with...I just want to be on my own”. Derek (participant 083)

Negative feelings were reported to be hard to control for participants with BD.

“It is more those feelings I consider negative that I find harder to control.” Mic (participant 071)

Conversely, ten (10) participants in the control group felt that they were able to have a grip over their own emotion. To them, control is a choice, they can choose to use control if they prefer.

“It is quite easy because you choose to control it. As soon as you choose to control it, you can get it under control...I can get it under control. It is the choice to control it, because sometimes, you know, I’m actually starting to get angry, I can remove myself from the situation, and that is it done”. Eileen (participant 052)

5.3.3.3 Loss of control of manic and depressive states

All BD participants also reported that their BD symptoms led them to behave in ways they did not choose to. This also involved being in isolation because of concerns regarding the impressions they project when trying to be normal in the society. This has also led to the avoidance of situations that they had previously enjoyed because of fear of how they would appear or whether the stress associated with these situations would mean deterioration of symptoms. Participants reported behaviours such as staying in bed all day and lowered personal hygiene when they felt low and hearing voices as well as hyperactivity when they were high. Participants wanted the absence of the distressing negative feelings that took precedence rather than the presence of the positive aspects of well-being. They explained that this was due to the all-consuming nature of depression over which they felt they had no control over. While they

could obtain some relief from anxiety, depression was expressed as an ever-present darkness that was difficult to escape from or cope with.

“And when you are manic you just completely lose control of that, and things appear to you that aren’t real, that can’t be measured by other people. That is frightening and shocking, and that is I think the real problem with bipolar that we lose our minds literally for some period and our emotions are completely, and our cognitive faculties are low, and that is just pretty terrifying, and it can make you feel very frightened indeed... For me, more of the issue is the fact that when I’m very high, I could hear things that aren’t being spoken, I could experience things that aren’t there, and that is more of a problem to me to be honest”. Gary (participant 086)

“And I can tell that nobody really wants to talk about what you know. So if I’m really bad I’ll just sort of arrange for the kids to be looked after, and I will just go to bed and bring down myself for a while until it passes, and yea, probably cry a little”. Lola (Participant 066)

Participants with BD had severe difficulty, fear and loss of control of the symptoms of mania and depression thereby evoking negative emotions.

“I find it hard to control feeling low or depression....I am going to end up in this negative cycle. I’m not going to get out here. I cannot cope with this. It is too intense’ So I would end up sort of making myself sadder”. Kerry (participant 101)

Participants with BD had concerns about how participant felt, but they were helpless about how to halt the feeling, therefore, evoking feelings of resentment.

“I am more down than up. I’m rarely really happy. I can be happy. I’m more depressive than manic. Manic is not very common. So that really scares me when I’m like that because I do not know what to do. I do not know what I do with all my energy...my head is all loud...I cannot stop myself. But then when I’m down it is like life stops. I can’t move; I can’t think. I just feel so teary; I feel angry; so sad...just don’t want to be here. Hate the world, hate everybody”. Kim (participant 106)

5.3.3.4 Summing up the psychological states theme

Participants' narrative of irritability indicates that it is built up over time. Control of emotions and lack of control of emotions seems to be particularly important to participants with BD while control participants described their control as choice. They always have a grip over how they exercise control. For participants with BD, one of the most evident aspects of control was the management of their emotions and of their emotions during different phases of BD. Having control of their BD mood symptoms would mean that individuals could move beyond the all-encompassing world of their illness and instead attend to other important areas of their lives. Lack of control presented problems with relationships represented a complex multidirectional interaction between the individual and society at varying interpersonal levels. This interaction involved the effect of the person's illness when relating to others, other people's subsequent reactions and attitudes to them, and the effect of those reactions and attitudes, further aggravating symptoms of anxiety and depression and affecting the person's perception of them. Examples of the barriers experienced in connecting and relating to people included Irritability, expression of anger and experience of manic or depressive phase of their BD diagnosis. Goleman's model of EI (Goleman 1998) describes social competence and social skills (the ability to maintain rapport with people and manage relationships) as one of the components of EI. Hence, an inability to control psychological states that lead to strained social relationships is a setback from becoming an emotionally intelligent individual.

5.4 Discussion

The review of the literature revealed that individuals living with BD represent an under-researched population (Freedberg, 2011). The current investigation contributes by adding to the understanding and knowledge of this under-researched population (persons with BD). The qualitative interview identified three major themes: Emotion recognition, psychological well-being, and psychological states.

5.4.1 Emotion recognition

One of the strongest themes revealed by this qualitative study was difficulties related to emotion recognition in people with BD. Mayer and Salovey's (1997) four branch model of EI stressed the ability to identify emotions and performance in responding to emotional

situations as essential to being an emotionally intelligent individual. Perception and recognition of emotion in oneself and others is one of EI attributes in human beings and crucial to social communication (Haxby, Hoffman, & Gabbini, 2000), hence, its absence suggests a possible lack of EI. In this qualitative study, participants with BD often seemed to recognise negative emotions but more seldom positive emotion. This however is not in agreement with researchers who found that their participants with BD had more difficulty recognising sadness and anger (Hoertnagl et al. 2011) and fear (Goghari & Sponheim, 2013) but in support of studies that found recognition of negative emotions in their patients with BD (Altamura, Padalino, Stella et al. 2016; Lembke & Ketter, 2002). Another important finding was the lack of recognition of positive emotions in participants with BD, e.g., happiness, this finding is in agreement with the studies of Venn et al. (2004) that found deficits in recognising emotion among BD participants. This study also revealed a lack of awareness when participants with BD transitioned from one emotion to another, this is in agreement with the study of Driscoll (2004) that described transition of emotions in individuals with BD as the flick of a switch. To the best of our knowledge, lack of awareness of transition between emotional states in a qualitative study with BD individuals has been rarely reported. The control participants' emotion recognition ability in this study has been supported by previous research (Calvo and Beltran, 2013). They found no emotion recognition deficits in their control participants.

5.4.2 Psychological well-being

Psychological well-being is a broad construct encompassing numerous factors related to an individual's overall level of functioning and adaptation to their environment. In an attempt to capture the breadth of this construct in this interview, the psychological well-being theme had four relevant subthemes: Life and childhood experiences, suicidal episodes, hope/hopelessness concerns about the future and loss of livelihood and standard of living. Life and childhood experiences have shaped participants (BD and control) experiences of different emotions and their perception of life.

Beck's (1979) cognitive theory of BD suggests that depression occurs because of patterns of negative schemata. These schemas are formed on early/childhood experiences and are activated by trigger events that accentuate mood shifts. Individuals who are depressed become more negative on how they perceive themselves, others, and the world. Some of the BD participants revealed some difficulties establishing and maintaining the type of

relationships they ultimately wanted, often because of a previous negative experience. They reported feelings of rejection and being criticised from friends and family, having difficulties with trusting people, and feeling anxious in social situations because of the fear of being judged. This had a reciprocal detrimental effect on their psychological well-being and the emotion perception of themselves and others. The findings in this study indicated the importance of researching this construct to better understand emotions in individuals with BD. In relation to the finding of the importance of hope and hopelessness about the future of well-being, similarities can be seen between the results of this interview and the concept of depression about hopelessness, according to Clarke and Kissane, (2002), the onset of depression triggers feelings of hopelessness, these feelings are associated with poor outcomes (e.g. suicide ideations). In addition, Oliver and Brough (2002) found people with low EI and high negative affect to be more vulnerable to poorer psychological well-being outcomes such as depression.

According to Connell, John Brazier, and O’Cathain (2014), depressive symptoms are characterised by a persistent inability to cope with internally or externally induced stress which results in feelings of helplessness, incompetence, and control. The end result of this is diminished self-esteem, hopelessness, and demoralization, which then adds to the decline of symptoms and could further reduce individuals with BD capacity to cope. This feeling of hopelessness and demoralisation further impacts well-being and, if untreated, leads to chronic distress and possible suicide (Strada, 2009). The participant’s narratives are stories of their life course. For BD participants, their experiences demonstrate that despite that the life course of individuals with BD is predictable to some degree, periods of overwhelming uncertainty exist.

5.4.3 Psychological States

According to the BD participants’ narrative of their experiences, they frequently experience severely irritable states which affects their relationships to other people. This is an aspect of BD that has been left relatively overlooked (Federman & Thomson, 2010). Psychological states such as irritable state, emotion state control, and loss of control of manic and depressive states have also created barriers in effective social functioning in participants with BD. Karim (2009) found a significant relationship between EI and the psychological states of participants. According to him, an individual’s psychological state affects his EI and in turn affects the persons overall psychological health. According to participants in this study, barriers created by their psychological states result in difficulties controlling emotions,

difficulties controlling behaviours, anxiety as well as irritability. Participants with BD described managing the severity of the fluctuating and enduring nature of the symptoms of BD. This in turn impacted on how they perceived themselves and their emotional reactions. Irritable state in controls was reported as appropriate to the event and has no impact on their personal lives.

5.4.4 Limitations, implications, and future research

This study initially aimed to interview 40 participants (BD; $n=20$, control; $n=20$). Recruitment stopped at 35 (BD; $n=20$, control, $n=15$) interviewees. This is because the control participants who had agreed to partake in another study were not willing to partake in a further study when contacted at a later time. The time difference between the quantitative study and qualitative study could have played a major role in the decline of participation.

There is also a possible selection bias in this methodology. Participants had initially taken part in a quantitative study and were reinvited at a later time to participate in the qualitative study. Participants who responded to the recruitment process would likely be those who were more interested in and able to talk about their experiences. This self-selected sample would not be representative of all samples especially patients with BD. In particular, the sample that was obtained may have been under-representative of patients who are going through a form of intervention for their diagnosis. Furthermore, the method of recruitment of participants with BD was a limitation in this study. Participants with BD in this study were recruited through support groups. It is possible that the responses of individuals with BD who do not belong to a support group might be different to the responses obtained in this study. Future research can look at other participant recruitment options, e.g. through the National Health Service (NHS).

The themes that were identified in this qualitative study represent a collection of concepts and ideas of different understandings of the distress and unusual experiences reported by individuals with BD in comparison to controls. Future research could apply these themes using quantitative methods to explore their generalisability with larger numbers of participants. The identified themes also offer a variety of possibilities for further interpretation and exploration in helping people with BD to overcome these difficulties. One area that would be particularly important is further exploring the implication of symptom severity on emotions in individuals with BD. Scores on mood symptoms of participants with BD were not collected prior to the interviews, hence it was impossible to determine if the symptoms associated with the phases of BD had an influence on the responses of participants with BD. There is evidence

that individuals that are experiencing mania exaggerate their experiences (Cassidy & Carroll, 2001). Additionally, individuals experiencing symptoms of depression, particularly in BD, have been shown to have lack of interest in activities (Mitchell & Mahli, 2004). This could have an impact on the depth of information that participants offered.

5.5 Conclusion

Although qualitative research does not have the statistical power of quantitative research, it can be particularly useful for helping to explain complex relationships and for shedding light on emerging areas of research (Michalak et al. 2007). In particular, for BD, it gives a better understanding about the disorder, gives researchers and clinicians insight into future considerations for diagnosis and treatment. The control participants' reports provided an understanding of the different lived experiences of individuals in the general population, particularly because some individuals with BD are usually involved in daily activities (e.g. have regular employments) as everyone in the general population, however their lived experiences are different. Emotion recognition (recognition of negative emotions, lack of recognition of positive emotions, recognition of emotion in others, lack of awareness of transition between emotional states), psychological well-being (childhood and life experiences, suicidal episodes, hope/hopelessness concerns about the future and loss of livelihood/standard of living) and psychological states (irritable state, emotion, control state and lack of control of manic and depressive states) were reported to be important factors in understanding emotions in individuals with BD from a qualitative point of view.

Chapter 6

Discussion of findings from all Studies

6.1 Summary of thesis findings and their contribution to the body of knowledge

The specific aims of this thesis were to investigate if there was a difference between people with BD (bipolar disorder) and people in the general population (controls) in terms of their EI (emotional intelligence), if there was difference in abilities to understand and make sense of positive emotions and negative emotions in individuals with BD when compared with the general population and if there was a substantial relationship between EI and alexithymia in individuals with BD and the general population. Finally, this thesis examined possible gender differences in EI and alexithymia within each group of participants and between participants with BD and the control group. To address these research aims, a mixed methods approach was utilised, which included a questionnaire based quantitative study that measured EI with the Wong and Law Emotional Intelligence Scale (WLEIS; Wong & Law, 2002), alexithymia with the Toronto Alexithymia Scale (TAS-20; Bagby et al., 1994; Bagby, et al., 1994) and emotional control/regulation with the Sense of Emotion Control Questionnaire (SEC; Sundin et al. unpublished document). Mood symptoms of depression and mania were measured with the Centre for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977) and the Young Mania Rating Scale (YMRS; Young, Biggs, Ziegler, & Meyer, 1978). Additionally, the experimental study used an emotional performance recognition accuracy, misattribution and response time task and the qualitative study assessed positive and negative emotions with an interview.

The initial review of the existing knowledge on the topic revealed that there is a considerable amount of research on the EI construct in healthy individuals (Bracket et al., 2004; Cote et al., 2003; De Raad, 2005; Mallett, Smith, McLaughlin & Sayers, 2008) and in some psychiatric disorders, for example schizophrenia (Archer et al. 1994; Gur et al. 1992; Healy et al. 2016; Kee, et al. 2009; Walker et al. 1984; Warman & Lysaker, 2014). However, empirical studies of EI in individuals with BD have mainly been limited to focusing on aspects of EI, such as regulation of emotion (Green et al. 2011; Gruber et al. 2011; Gruber et al. 2012; Gruber et al. 2014), and emotion recognition and perception (Fulford et al., 2014; Gruber et al., 2011; Kohler et al., 2011). Indeed, very limited research has studied the overall EI construct in individuals with BD.

The literature review concluded that more research on EI in people with BD is needed to fill the gap in current knowledge. Therefore, the work in this thesis was designed to investigate all EI aspects as conceptualised by the four branch EI model of Mayer and Salovey (1997): Perception and understanding of emotion; use of emotion and emotion regulation in individuals with BD. Specifically, three methods of investigation were used for this purpose: a questionnaire based questionnaire based quantitative study (Chapter 3), an experimental study (Chapter 4), and a qualitative study (Chapter 5). The use of three methods to investigate the aims of this thesis makes the work more comprehensive, because it accepts both the inductive and deductive nature of all three methods of investigation respectively (Johnson & Onwuegbuzie, 2004). In addition, the use of mixed methods research (MMR) has the potential to produce complementary strengths and compensate for the weaknesses of each method of investigation (Brewer & Hunter, 1989). In fact, findings that are corroborated using mixed methods provide increased confidence in their accuracy (Chua, 2014). However, it has been emphasised that the goal of MMR should also be to provide further understanding not only corroboration (Onwuegbuzie & Leech, 2004). Some other advantages of using MMR include the ability to use narratives of the qualitative study to provide meaning to numbers and statistics of the quantitative and experiment studies, increased generalisability of the results and the production of more complete knowledge that is necessary for informing theory and practice in this subject area (Johnson & Onwuegbuzie, 2004). Bryman (1988) argues that the use of MMR in research as “the best of both worlds” that enables getting the best results. MMR therefore has the potential to harness the strengths and counterbalance the weaknesses of the quantitative and qualitative approaches and can be especially powerful when addressing complex, multifaceted issues such as possible health interventions (Raven, Doran, Kostrowski, Gillespie & Elbel 2011) and living with an illness such as BD (Nicca, Fierz, Happ & Spirig 2012). In summary, MMR is an innovative and increasingly popular way of addressing the complexities in different complex disorders (Tariq & Woodman 2013) that is well equipped for the study of BD, which is a complex and multifaceted illness due to the different phases individuals with the disorder experience.

Researchers have critiqued MMR. Firstly, Reed and colleagues (2016) argued that combining methodologies has sometimes been problematic because quantitative and qualitative methods of investigation belong to separate and at least seemingly incompatible paradigms. There are different school of thoughts that favour either the quantitative or the qualitative method of investigation therefore; it is believed that these approaches should not

be combined in a study. Secondly, O'Cathain, Murphy and Nicholl (2008) suggested that the use of MMR should be for a longitudinal study and with a team from different disciplines rather than for short term research and single disciplines. Thirdly, Pluye et al. (2011) reported the lack of uniform standards for reporting MMR. According to Equator (2016), there are no current internationally recognised standards and guidance for reporting MMR. Being mindful about these concerns, the researcher used MMR to design this research on EI in individuals with BD as MMR provides a way of combining application of a range of different investigative tools to answer the research questions (Tariq & Woodman 2013).

6.2 Questionnaire data (quantitative Study, chapter 3)

The first quantitative study was a questionnaire based study. The analysis of the questionnaire study investigated three of the four aims of this thesis (section 1.9, chapter 1). Participants completed the WLEIS (Wong & Law, 2002), the SEC (Sundin et al., unpublished manuscript) and the TAS-20 (Bagby, Parker, & Taylor, 1994; Bagby, Taylor, & Parker, 1994). The participant's current symptoms of BD were ascertained using the CES-D (Radloff, 1977) and the YMRS (Young, Biggs, Ziegler, & Meyer, 1978). The findings of the quantitative study are discussed below.

6.2.1 Emotional Intelligence and bipolar disorder evaluated in the quantitative study

The WLEIS (Wong & Law, 2002) was used to measure EI of the participants with four subscales; self-emotion appraisal, others' emotion appraisal, use of emotion and regulation of emotion. The subscales are consistent with Mayer and Salovey's (1997) definition of EI. The WLEIS was chosen as a measure of EI for this thesis because previous research (Law et al. 2004; Law, et al., 2008; Shi & Wang, 2007; Wong & Law, 2002) found support for the four subscales' reliability, convergent and discriminant validity. The analysis of the WLEIS indicated that participants with BD had significantly lower EI, compared to the controls.

The paucity of research on EI in individuals with BD has limited the ability to compare the results of this thesis with previous studies; however recent research by Chapela, et al. (2016) is consistent with the results in Chapter 3. In the Chapela et al. study, twenty-six adults with type I BD were examined using the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT, Mayer, Salovey, & Caruso, 2002), the results found BD participants to show lack

of EI when compared with the controls. A point worth noting is that, although Chapela et al. (2016) used a different measure of EI, the MSCEIT to this thesis. The MSCEIT has been widely used in previous studies measuring EI in other psychiatric disorders (e.g. schizophrenia; Daros et al., 2014). The results of this thesis that suggests a lack of EI in individuals with BD increases the validity of the WLEIS (a measure of EI) as a measure of EI that can be used in individuals with psychiatric disorders. In addition, the questionnaire quantitative study of this thesis used more participants than the study of Chapela et al. (2016), being one of the strengths of this thesis and increasing the generalisability of the thesis findings. This results adds to the growing evidence which demonstrates that researching emotional competencies are necessary to understand psychosocial functioning disorders such as BD. Additionally, previous research studying BD symptoms (Couture et al., 2006; Lee et al., 2005; Mueser et al., 1996; Persad & Polivy, 1993) have suggested a lack of EI in individuals with BD by characterising individuals with BD as having poor emotion abilities, poor psychosocial capabilities and lacking the social cognitive ability to make inferences about the mental and emotional state of themselves and others.

The role of “Theory of Mind (ToM)” in individuals with BD has recently begun to receive attention (Epa & Dudek, 2015; Kerr, Dunbar & Bentall, 2003). ToM is one of the dominant theories of understanding cognitive and emotional processes in humans. ToM is relevant to EI as well as BD as it explains the thoughts and emotional processes that occur in oneself and in others (Epa & Dudek, 2015). ToM is a valuable skill responsible for an individual’s emotional functioning, therefore its impairment can be directly translated into difficulties in coping in the social environment (Samamé, 2014) as often seen among individuals with BD. Emotional competencies are necessary for coping in ones’ social environment. The results of the questionnaire study in Chapter 3 found limited EI in individuals with BD, and the problems with ToM cognitive and emotional processes could further explain the EI difficulties in individuals with BD. Studies on ToM in individuals with BD are in agreement with the result of this thesis, finding emotional processing, emotion perception, recognition and ToM deficits in individuals with BD (Cusi, MacQueen & McKinnon, 2012; Purcell et al., 2014; VanRheenen & Rossell, 2013). In addition, these researchers found the presence of these deficits during both phases of BD (depressive and manic).

According to Mayer and Salovey’s (1997) four branch EI model, limited EI could be related to psychosocial difficulties (as in individuals with BD), which in turn, could result in adopting maladaptive psychosocial strategies (Schultz et al., 2001) in navigating the social

environment. High EI facilitates for an individual to understand oneself and others hence, allowing socially acceptable behaviours. Research on healthy individuals (Leppänen & Hietanen, 2001; Yoo et al., 2006) has shown that EI is important to an individual's emotional and psychosocial wellbeing, as it improves social adjustment. Limited EI, as in the case of people who suffer from BD, is linked to psychosocial difficulties, often shown as social withdrawal. Given that the results of this thesis have indicated limited EI in individuals with BD, it is of vital importance to include EI into understanding BD as it likely has implications for wellbeing, prevention and treatment of BD symptoms. The implications of the findings in Chapter 3 of this thesis have relevance for clinical scenarios and will be discussed in more detail in section 6.6.1 of this discussion.

6.2.2 Diagnostic measures of depression and mania evaluated in the quantitative study

The CES-D (depression) and the YMRS (mania) were used to measure mood symptoms. In the questionnaire study, the BD group showed more depressive symptoms than the control group. Correlation of EI and depression showed that higher level of depression indicates a lower EI in participants with BD and controls, with the strongest association in the BD group. Correlation of alexithymia and depression showed higher alexithymia to be related to depression in both groups with the most effect in the BD group. Additionally, correlation of the adaptive and maladaptive emotion control and depression showed a negative correlation between depression and adopting adaptive emotion control strategy in the BD group, there was also a correlation between depression and adopting maladaptive emotion control in both groups, with the most effect in the BD group. The findings of a positive correlation between depression and low EI is consistent with previous studies (Abdollahi, Talib & Motalebi, 2015; Downey, et al. 2008; Tannous & Matar, 2010). This result reflects significant deficits in the EI abilities to perceive and understand emotions, use of emotion to facilitate thought and manage emotions when individuals with BD are experiencing depression. In addition, the emotion control results suggest that depression inhibits an individual with BD's ability to regulate positive and negative emotions adaptively. This result is in agreement with the studies of Ciarrochi and colleagues (2002) that found negative relationship between emotional management skills and depression, in their study, participants with depression struggled to effectively use adaptive emotion regulation strategies when compared to controls. Give that depression has been found to interfere with an individual's psychosocial functioning

(Abdollahi et al., 2015) it is not surprising that the result of this thesis is in agreement that a high depression suggests a low EI.

In the questionnaire study, there was no group difference between individuals with BD and the control group on the mania scale (YMRS). Thus, individuals with BD did not have significant manic symptoms when compared to controls. Additionally, the correlation of EI and mania showed a negative relationship, thus, a high level of mania indicates a lower EI in the BD group. The correlation of alexithymia and mania showed a statistically significant correlation in the BD group suggesting that high alexithymia scores are associated with mania. Lastly, correlation result of the adaptive and maladaptive emotion control and mania showed a significant correlation between mania and adopting maladaptive emotion control in the BD group. This suggests that a high manic symptom is related to a high alexithymia. The limited research on EI in individuals with BD has restricted the ability to compare the mania results of this thesis with previous studies. Nevertheless, the brain imaging study of Henry and colleagues (2012) corroborates this; they found mania to be related to increased emotional reactivity in their participants with BD when compared to controls. The finding of a relationship between mania and maladaptive emotion regulation agrees with the research of Van Rhee and colleagues (2015) that found their manic BD patients to have difficulties in emotion regulation characterised by impulse control when compared to controls. These findings represent an important step towards informing the development of new treatment strategies to remediate EI and emotion regulation difficulties that will improve BD symptomatology.

6.2.3 The relationship between EI and alexithymia in individuals with BD evaluated in the quantitative study.

As discussed in section 1.3.3 (chapter 1), the construct of alexithymia is conceptually like EI. The EI construct was initially developed as a result of research on communication, appraisal and use of emotions (Salovey & Mayer, 1989; 1990; 1997) while alexithymia was formulated by Nemiah and colleagues (1976) as a result of a study of patients with psychiatric disorders, psychosomatic disorders, eating disorders and post-traumatic stress disorder (Parker et al. 2001; Taylor, Bagby & Parker, 1991, 1997). Hence, the two constructs (EI and alexithymia) are interconnected as individuals with psychosomatic and psychiatric disorders such as BD has been found by previous research (e.g. Harmer et al., 2002) to have emotion and communication difficulties.

The second aim of this thesis was to examine the relationship between alexithymia and EI measured by TAS-20 and WLEIS, respectively, in participants' (BD and control) responses. A total of two subscales (difficulty identifying feelings and difficulty describing feelings) of the TAS-20 correlated significantly and negatively with the four subscales of the WLEIS (SEA- Self-emotion appraisal; OEA - Others' emotion appraisal; UOE - Use of emotion; ROE - Regulation of emotion). These findings are consistent with studies of clinical (McDougall, 1989) and non clinical samples (Schutte et al., 1998) .

According to McDougall (1989), individuals within clinical populations that are high in alexithymia show a noticeably limited capacity for perceiving and understanding the emotional states of others. EI has been defined by Mayer and Salovey's (1997) four branch EI model as beginning with perception and understanding of emotions in oneself before proceeding to the understanding emotions in others, therefore, a lack of emotion perception and understanding in others could indicate a lack of perception and understanding of emotions in oneself (Mayer, Salovey, Gomberg-Kaufman, & Blainey, 1991). Thus, this suggests that EI about oneself and in others may be inseparable.

The finding that EI is inversely related to alexithymia in controls is consistent with research on non-clinical samples. For example, Schutte et al. (1998) found that EI is strongly and negatively correlated with alexithymia among university students and controls using their EI 33-item self-report scale and the 26-item TAS-26 (Taylor, Ryan, & Bagby, 1985). Additionally, the findings are also consistent with the study of Davies, Stankov and Roberts (1998) and Parker et al. (2001) that used the the TAS-20 (Bagby, Parker and Taylor, 1994a) to assess the appraisal and expression of emotions in the self and the recognition of emotions in others, using their scale of EI found alexithymia to have a negative correlation. Furthermore, the findings of Booth-Butterfield and Booth-Butterfield (1990) are also in agreement, they found that the TAS-20 correlated negatively with the affective orientation scale (a measure of emotional awareness) when assessing the use of emotion to facilitate communication in others.

In addition, this thesis also found that the external oriented thinking subscale of the TAS-20 was negatively and significantly correlated with only one OEA subscale of the WLEIS in the BD participants, this is consistent with the findings of Davies, Stankov and Roberts (1998) that found the EOT (external oriented thinking) subscale of the TAS-20 to be negatively correlated with their self report emotional awareness scale and Mehrabian and Epstein's (1970) measure of emotional empathy questionnaire.

The connections between alexithymia and BD highlight the importance of studying alexithymia in an attempt to improve understanding, treatment and care for individuals suffering from BD. Longitudinal studies are recommended to research these associations further. The implications of the findings in this thesis, for clinical and applied scenarios are discussed, in more detail in section 6.6.1 of this discussion.

6.2.4 Gender differences evaluated in the quantitative study.

Unlike other psychiatric disorders (e.g. schizophrenia), gender differences have not been studied frequently in individuals with BD. This thesis did not find overall gender differences in the EI of their participants with BD. This finding is consistent with the findings of the few studies that have been undertaken EI gender differences in healthy participants, e.g., Goleman (1998), Derntl et al. (2009) and Bar-On (1997), but not in agreement with Shi and Wang (2007), who found male students to have a higher EI than female students and research that found women to have a higher EI than men (Day & Carroll, 2004; Mayer et al.1999; Schutte et al. 1998; Van Rooy, Alonso, & Viswesvaran, 2005). Furthermore, this research did not find gender differences in alexithymic symptoms of participants; this finding does not support previous research (Carpenter & Addis, 2000; Levant, Hall, Williams & Hasan, 2009) in their study of healthy participants that found that men exhibited higher levels of alexithymia when compared to women. More research is needed to better understand gender differences in emotion processing.

6.2.5 Additional findings of the quantitative study

In addition to addressing the aims of the thesis, the quantitative study ran a few additional analyses.

6.2.5.1 TAS-20 in individuals with BD

The result of the TAS-20 in the quantitative study found the participants with BD did not differ from the control in their alexithymia symptoms. Although the mood scores of depression and mania correlated with the alexithymia scores in the BD group, it is surprising

that there was no group effect. This result is not in agreement with previous research (Lane et al., 1996; Parker, Taylor & Bagby, 1993b) that found group differences in their clinical participants when compared to controls. The result of the TAS-20 in the quantitative study also found that individuals with BD have difficulties identifying their feelings when compared to controls. As with the results of previous studies (Lane et al., 1996; Parker, Taylor & Bagby, 1993b), this thesis is in agreement that individuals with alexithymia have difficulties in accurately identifying emotions on the facial expressions of others, unable to identify with other people's emotions, have an inability to differentiate emotional states (Bagby, Parker, Taylor & Acklin, 1993) and are unable use emotions to cope with stressful situations (Parker et al., 1998; Schaffer, 1993). Previous research (Addington & Addington, 1998; Bozikas et al., 2006, 2007; Getz et al., 2003; Hofer et al., 2010; Lembke & Ketter, 2002) have attributed difficulty in accurately identifying emotions in psychiatric disorders, such as BD, to an inability to conceptualise emotional and mental states. These difficulties are likely to have a detrimental effect on the individuals formation of social networks and relationships (Inoue et al., 2004; Schenkel et al., 2008) that are often significantly impaired in these disorders (Bauwens et al., 1991; Blair et al., 2004; Calabrese et al., 2003; Elgie & Morselli, 2007; Fanning et al., 2012; Sánchez-Moreno et al., 2009; Van Rheezen & Rossell, 2013a ; Van Rheezen & Rossell, 2014). A possible explanation for the group difference is that individuals with BD have been found to have a tendency to engage in rumination (Gruber et al., 2012). They are able to repetitively and continuously think about the various aspects, the causes, situational factors, and consequences of their emotional experiences especially when they are negative situations and upsetting (Nolen-Hoeksema, 1991).

6.2.5.2 Sense of emotion control in individuals with BD

Emotion regulation is an important aspect of psychosocial interaction. Thus, it is important and necessary to possess this ability for a successful social interaction. The result from the SEC (adaptive and maladaptive emotion control) measure indicated that individuals with BD adopt maladaptive emotion regulation strategies when regulating positive and negative emotions when compared to controls. According to Parker et al. (2001), maladaptive strategies inhibit an individual's ability to function in the society. It is no surprise then, that individuals with BD were found both here (Chapter 3) and in previous research (e.g. Derntl et al., 2009) to have psychosocial difficulties.

6.3 Emotional performance recognition accuracy, error and response time data (Chapter 4)

Another method of investigation used in this research was the experimental study. The experiment was conducted after the interviews with the BD participants on the same day. The experiment trials were measured based on the six universally recognised emotions: happiness, sadness, anger, fear, disgust and surprise (Ekman & Friesen, 1975). In each experiment trial, a face was presented on screen for 4 seconds. Immediately following this, the participants were presented six emotion labels, from which they had to select the emotion that best represented the emotion of the face they had just seen. The participants had 4 seconds to make their response (touch emotion label) before the trial was terminated and the next trial began. Responses within the 4 seconds response time cleared the screen and initiated the next trial face (see Figure 3, Chapter 2 for examples of the faces along with the response screens). Performance on this task in the experiment was measured using emotion recognition accuracy (% correct), response time (measured by the milliseconds) to the target images used, and misattribution (error) was compared against performance with typical controls. The ability of participants to recognise emotions from facial expression was measured based on the six universally recognised emotions: happiness, sadness, anger, fear, disgust and surprise (Ekman & Friesen, 1975).

In the experiment, there was no difference in the accuracy of facial emotion recognition between BD participants and controls. There was also no group difference in the response times of participants. Lastly, the participants with BD had more misattributions of anger to other emotions. Specifically, participants with BD made more anger as disgust misattributions when compared to controls. Lembke and Ketter (2002) are not in agreement with the accuracy results of this study, they found that the participants with BD in their study had poorer ability than the controls, at recognition of facial emotion. The experiment results also indicated no group difference in the response times of participants. Goghari and Sponheim (2013) and Kim and colleagues (2009) are not in agreement, instead they found participants with BD to have a slower response time to identifying emotions when compared with controls. A possible explanation for this finding is that no diagnostic measures were completed before the experiment, therefore, we cannot ascertain the current mood states of the participants, as there is a possibility that most of the BD participants were either euthymic or in remission at the time of the study. In addition, the results indicated that the participants with BD had anger misattributed to other emotions more than the control group, specifically anger as disgust. The

results of this experimental study are consistent with those of Lembke and Ketter (2002) and Hoernagl and colleagues (2011). They found worst overall emotion recognition in their participants with BD when compared with controls, as they mostly misattributed disgust as anger. In addition, Rocca and colleagues found that individuals with BD have an impaired capacity to recognize negative emotions, such as anger and disgust, particularly when they are experiencing mood symptoms of BD during the phases of depression and mania. There is a possibility that this symptoms persist, even in remission. Therefore, future research should investigate the possible effect of the phases of BD on emotion recognition accuracy and misattribution of emotion.

6.4 Positive and negative emotions in individuals with BD (Chapter 5)

A qualitative study was undertaken to capture and explore participants' experiences and perspectives on positive and negative emotions. A deductive thematic analysis approach was taken to explore data collected in semi-structured interviews. This approach identified various themes that characterise an individual's recognition and perception of emotions. The themes identified include; emotion recognition, psychological well-being, and psychological states.

Chapter 5 provides some evidence that individuals with BD tend to recognise negative emotions more often than positive emotions, both in themselves and others. BD participant's responses provides evidence that individuals with emotion disorders such as BD use 'projective reduplication' when thinking about the emotional experiences of others (Pogostin, Schoenbrun, Santorelli, Lundquist & Ready, 2014). Projective reduplication was coined by Marty and De M'Uzan (1963), who defined it as being when a person perceives another as a mere copy of oneself. In addition, the qualitative study also revealed a lack of awareness when individuals with BD transitioned from one emotion to another, this was described a sudden and unpredictable, in agreement with this thesis' findings, Driscoll (2004) described the emotion transition of women with bipolar II disorder as from melancholy to mayhem like the flick of a light switch from off to on.

The psychological wellbeing theme (and subthemes) identified in Chapter 5 lends itself to Carol Ryff's model of psychological wellbeing (Ryff, 1989a; Ryff, 1989b; Ryff, & Keyes, 1995). Wellbeing is a multidimensional concept that includes subjective, social, and psychological dimensions as well as health related behaviours. Ryff's facets of psychological well-being include self-acceptance, personal growth, purpose in life, autonomy, environmental

mastery, positive relations with others. These facets focus on psychological component of well-being. The data from the interviews suggested that wellbeing is dynamic, and not merely about happiness, or positive emotions. A good life is balanced and whole, engaging each of the different aspects of wellbeing, and influence an individual's experience and expression of emotions instead of being narrowly focused. The interviews also indicated that acceptance, childhood and life experiences, fitting with society, hope about the future and the quality of relationships were all essential to wellbeing. The psychological wellbeing theme of the qualitative study with its various sub-themes; childhood and life experiences, suicidal episodes, hope/hopelessness concerns about the future and loss of livelihood and standard of living (for example jobs/ business, social and emotional functioning) are important to quality of life of an emotionally intelligent individual. Disadvantageous to psychological wellbeing were feelings of distress caused by symptoms of the experience of BD phases particularly mania and depression, critical and judgemental relationships, stigmatisation, rejection and lack of understanding by those close to the individuals with BD and the wider society, all of which tend to result in feelings of loneliness, isolation, and detachment (Almeida & Horn, 2004).

Additionally, the interpretations of the interview transcripts showed that the interviewees revealed the importance of caring, loving and supportive relationships, acceptance, and understanding from family and the people in the society on their emotional wellbeing. The results of the qualitative study suggests the importance of life experiences on individuals. In agreement with the thesis findings, other studies (Almeida & Horn, 2004; Baltes, Lindenberger & Staudinger, 2006; Birditt, Fingerman & Almeida, 2005; Blanchard-Fields, 2007; Scheibe, Stamov-Roßnagel & Zacher, 2015; Scheibe & Zacher, 2013;) found that experiences shape an individuals emotional awareness. Positive and negative life experiences play their roles in an individuals emotional awareness. Life and childhood experiences have shaped individuals with BD experiences of different emotions and their perception of life. Some of the participants revealed some difficulties establishing and maintaining the type of relationships they ultimately wanted, often because of a previous negative experience. They spoke of feelings of rejection and being criticised from friends and family, having difficulties with trusting people, and feeling anxious in social situations because of the fear of being judged. This had a reciprocal detrimental effect on their psychological wellbeing and perception of themselves and emotions.

The psychological state theme results suggest that lack of control was important to the experience of the impact of BD. Managing issues of control, and self-confidence was important

to individuals with BD. Previous research has highlighted the importance of maintaining control of one's life for the self. Individuals with BD often report feelings of being out of control (Crowe et al., 2012). According to Koch et al. (2004) 'taking control of one's own life is crucial in managing the self'. Therefore, the social requirement to monitor and moderate emotions can lead to a heightened sense of the need for self-blame (Wilson & Crowe 2009) which in turn should have a significant, positive impact on the sense of self and identity.

6.5 Summary of findings from the three studies and their link with each other

Table 18 shows the findings from the three studies (Chapters 3, 4 and 5). The findings are discussed below.

Table 18: Showing findings from the three studies

Quantitative study	Experiment study	Qualitative study
Low level of EI in individuals with BD compared to controls	No group difference in the facial emotion recognition accuracy	Recognition of negative emotions in BD participants
High depression and mania indicate low EI, with the most effect in BD group	No group difference in participants' response times	Inability to recognise positive emotions
Emotion regulation difficulties in individuals with BD compared to controls	Across both groups, there was an effect on the type of emotion	Lack of awareness of emotion transition in individuals with BD
Difficulty identifying emotion in BD group compared to controls	Across both groups, there was an effect on response times.	Psychological wellbeing and life experiences affects emotional awareness in both groups
EI is inversely related to alexithymia	Compared to controls, individuals with BD had more misattributions of anger to other emotions, specifically, anger as disgust	Irritability and lack of control of depressive and manic symptoms

Table 18 shows that the findings of the three studies in this thesis corroborate each other to some extent. The four branch EI model of Mayer and Salovey (1997), describes four aspects of EI (perception understand, use of emotion to facilitate thoughts and emotional regulation).

The result of the questionnaire study that individuals with BD have a low EI when compared to controls corroborates the results of the qualitative study that found inability to recognise positive emotions (limited emotion recognition/perception) and lack of transition between emotional states (maladaptive emotion control/regulation) in individuals with BD when compared to controls. Since Mayer and Salovey's (1997) four branch model of EI places emphasis on emotion perception and regulation (see Figure 1, in Chapter 1), as the most important components of EI, a lack of emotion perception and regulation suggests a low EI. Hence, based on the results of the questionnaire and interview studies, we conclude that individuals with BD have a lower EI than healthy controls.

The quantitative analysis of the SEC's adaptive and maladaptive emotion control showed the use of maladaptive coping strategies (poor emotion regulation strategy) by individuals with BD, additionally, the analysis of the TAS-20, suggests that individuals with BD have some alexithymic traits, in particular, difficulty identifying feelings (emotion perception) when compared to control. In support of this suggestion is the empirical evidence in literature. Chen, Xu, Jing and Chan (2011); Parker et al. (1998) and Pogostin, et al. (2014) are in agreement with this thesis, finding a relationship between alexithymia (lack of EI), particularly difficulty identifying feelings (emotion perception) and use of maladaptive coping strategies. Difficulty identifying emotions (particularly after they have occurred) is more likely to evoke maladaptive coping strategies such as irritability as shown by the interpretations of the interview transcripts of BD individuals in the qualitative study. Misattribution of emotion, as found in the experiment is an emotion recognition/perception deficit, BD participants in the experiment misattributed anger as disgust, in addition, the participants with BD reported an increased irritable state in the interviews, it could be explained that participants with BD misattributed anger as disgust because of their familiarity with the emotion. Furthermore, research (Downey, et al. 2008) found a relationship between depression and adopting maladaptive emotion regulation strategies, based on the result of this thesis individuals with BD, particularly those that are experiencing current mood symptoms (depression and mania) are more likely to exhibit low EI traits. Taken together, both the questionnaire-quantitative and qualitative data in this thesis suggest that individuals with BD tend to pay attention to the evaluation of the emotion of other people. The external oriented thinking (a disposition to focus

about external events rather than internal, Bagby et al., 1994) subscale of the TAS-20 was significantly correlated with only one (OEA) subscale of the WLEIS in the participants with BD, this is also consistent with the findings of the qualitative study that suggests individuals with BD tend to recognise emotions in other people.

In sum, the questionnaire-based quantitative study found overall lack of EI, emotion perception and regulation deficit in individuals with BD, the experimental study corroborates the questionnaire study by finding emotion misattribution in participants with BD and the qualitative study compliments the quantitative studies by finding emotion recognition and regulation deficits in individuals with BD, hence, we conclude that individuals with BD differ in their EI, compared to the general population (controls).

6.6 Implications of the study findings, treatment and implications for future research

The implications of the study results on treatment for individuals with BD and research issues and future considerations are discussed below in section 6.6.1, 6.6.2, and 6.6.3.

6.6.1 Clinical implications from this thesis

The results of this thesis have prospective significant clinical and research implications, particularly in further exploring the role of emotions in the treatment of BD. Since the main aim of treatment is to relieve symptom, and restore psychosocial adjustment, the findings presented here may help to enhance and improve treatment of BD particularly when understanding the subjective experience of living with BD. The results can also be used in different settings, in therapy and by clinicians for managing and reducing BD symptoms.

Individuals with BD have been said to benefit from cognitive behavioural therapy (CBT) and interpersonal rhythm therapy (ISRT), techniques that necessitates the utility of emotion regulation strategies (Hollon & Ponniah, 2010). However, research on emotion regulation strategies such as CBT, ISRT and adaptive strategies have been inconclusive suggesting that after receiving these treatments individuals with BD appear to have the ability to successfully execute emotion regulatory strategies when instructed, but have difficulties regulating emotions otherwise and that these techniques show only minor effects on the reduction of symptoms and improvement in psychosocial functioning (Gregory, 2010). However, more research on emotional processing in BD like this thesis continue to provide a

more solid foundation to build upon, which may in turn result in better psychosocial function for individuals BD.

Therefore, a series of important clinical implications are discussed. First, the results indicated for the participants with BD in this thesis that various factors (such as psychosocial and psychological well-being, emotional state control, and psychological state) contribute to their EI and psychosocial abilities. The participants' responses in the quantitative study also show that individuals with BD have emotion regulation difficulties, particularly in adopting maladaptive emotion regulation strategies. It is therefore recommended that interventions and treatment for individuals with BD should be tailored to address emotion regulation. Furthermore, the data from the experiment in Chapter 4 found a quicker response time for the sad emotion in both the BD group and control. Although the BD participants had a better accuracy and response to the sad emotion, they had misattribution of anger and disgust which are also negative emotions. Regarding the applicability of these findings of this study to clinical practice, these findings suggest that the aim of therapy may be to recognise the unique emotional profile of the individual's BD symptoms and attempt to separate these emotions from each other as the pattern is indicative of differences in processing different negative emotions.

Second, the qualitative study revealed important results particularly with regards to the role that irritable states play in individuals with BD. Interestingly, not only was irritability present in individuals with BD, it also has an impact on the psychological well-being of these individuals. The results have important clinical implications for the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) criteria, which currently places on the emphasis role of guilt. It is argued that guilt is derived from the basic emotion of disgust and it occurs in depression (American Psychiatric Association, 2013). According to Power and Schmidt, (2004), when individuals with BD experience the depressive state, disgust or irritability is turned against the self so that some aspects of the self, are considered repulsive and should be eliminated. They proposed therefore that it is disgust, not guilt that plays the key role in the onset of depression.

The findings of the presence of irritable state and disgust in individuals with BD also have important clinical implications for the self-concept and therapeutic work. Power and Dalgleish (2008) have suggested that disgust may play a major role in some cases of suicide and parasuicide. It is possible that there is an association between the levels of disgust

experienced in individuals with BD and the high rate of suicide (Carolan, 2009), this is an area an education aspect of treatment should focus on. Interpersonal therapy currently focuses on Educating individuals with BD on overlooked mood symptoms will help to avoid them and deal with setbacks.

Power, de Jong and Lloyd (2002) suggested that the self-concept is organised differently in individuals with BD so that the self is modularised around either positive or negative self- aspects. Rather than these being integrated as they are in healthy individuals they are modularised so that the self is defined entirely by positive or negative characteristics. Therefore in depressed BD states, positive aspects are ignored and in manic states, negative self-aspects are ignored resulting in extreme shifts in self-esteem between manic and depressed states as found in the qualitative and experiment studies. As such, psychological work with individuals with BD should aim to integrate these aspects into the self-concept so that both the negative and the positive self-aspects are considered in therapy (Power & Schmidt, 2004). Additionally, this would involve enabling the individual to become more aware of and to experience the particular aspects that are perceived to be repulsive so that the emotions of irritable state and disgust can be processed in a safe way. This is especially true because the longitudinal course of BD is dominated by depressed episodes (Judd & Akiskal, 2003) therefore suggesting that the experiences of irritable states and disgust may be more frequent as the illness progresses, particularly during the depressive phase (Judd, Paulus, Wells & Rapaport, 1996).

Third, this thesis revealed important results regarding the regulation of emotion (Chapter 3) and lack of awareness of transition between emotional states (Chapter 5). As with previous research, (Carolan, 2009; Parker et al., 2001) clinical groups frequently use maladaptive emotion regulation strategies to regulate negative emotion. Such strategies have been found to increase the duration and severity of episodes (Nolen-Hoeksema, 1991). The results also revealed that maladaptive emotional regulation strategies were used in the BD group as a means of regulating both positive and negative emotion. These findings have clinical relevance in that they suggest that along with the common maladaptive coping strategies present in phases of BD (for example manic individuals tend to have high spending, take high risk and pleasure seeking while depressed individuals exhibit withdrawal symptoms from social activities and have social isolation), BD participants have more difficulty controlling the negative emotions. Clinicians have focused on how thoughts affects emotions

during CBT, therefore, the results of this thesis continue to prove the need for psychotherapy to reduce symptoms of BD.

Fourth, another clinical implication in therapy relates to the finding of a lack of EI in individuals with BD. This leads to the recommendation that therapist should establish empathy and emotional understanding to efficiently treat patients (Burns & Nolen-Hoeksema, 1992). When a patient does not understand his emotions or the emotions of others, the connection between the patient and therapist may be disrupted, making it hard for the patient to identify their own emotions and the emotions of the therapist (Pogostini et al., 2001). In turn this makes it difficult for empathy to develop between the patient and therapist and making it difficult for the individual with BD to receive appropriate treatment.

The association between empathy and alexithymia was explored by Parker et al., (2001) and Vanheule, Desmet, Meganck, and Bogaerts, (2007). They found that individuals who show alexithymic symptoms tend to have decreased empathy and found alexithymia to be associated with decreased interpersonal functioning. Therapists should therefore focus on individual therapy for patients by modifying therapeutic procedures in a person-centred approach and testing for alexithymia in order to improve the patient- therapist relationship leading to an effective therapy (Lambert & Barley, 2001). By implementing the results of this research that have given a further insight of the emotional difficulties in individuals with BD, therapists will be better able to help patients reduce BD symptoms and utilise resources. The findings from this thesis should alert clinicians and researchers to recognise that the presence of alexithymic characteristics in their patients suggests low EI and that highly alexithymic individuals not only lack the capacity to use emotions to guide their behaviour but are also highly vulnerable to stress and have limited adaptive resources to regulate emotion (Vanheule et al., 2007).

Fifth, as discussed in Chapter 5 (section 5.4.2) , participants' responses in the interviews revealed that the general measures of psychological well-being may fail to address the emotion difficulties and the broad range of domains that are relevant to individuals with BD. Therefore clinicians and therapists should use holistic approaches and person-centred approaches to understanding symptoms of their patients as individual differences and quality of life implies that psychological well-being has various meanings depending on the person involved. This will be particularly useful during ISRT.

In conclusion, the result of this thesis has shown that BD symptoms may significantly interfere with emotional abilities and subjective well-being. Thus, even while euthymic and in

remission, individuals with BD may benefit from interventions addressing subsyndromal symptoms.

6.6.2 Implication of the results on treatment of EI in individuals with BD

The results of this thesis suggest a lack of EI in individuals with BD, therefore treatment should focus on improving the EI ability. An advantage of Goleman's (1998) model is that EI abilities can be learned and developed (Goleman, 1998). Intervening at the therapeutic level of beliefs about, and responses to, intense, threatening emotions might be a major role of therapeutic efforts aimed at preventing the appearance of the maladaptive emotional strategies adopting characteristic of patients with BD. In this sense, recent studies have led preliminary support for EI training programs being effective at increasing emotional abilities in non-clinical population (Nelis, Quoidbach, Mikolajczak & Hansenne 2009). EI training should be introduced to individuals with BD.

Harvey, Wingo, Burdick, and Baldessarini (2010) suggest that individuals with BD might also benefit from the treatments used to address cognitive deficits in schizophrenia. Concomitantly, the research of Eack, Hogarty, Greenwald, Hogarty and Keshavan (2007) found preliminary evidence that Cognitive Enhancement Therapy (CET) increases levels of EI in patients with early course schizophrenia and that some of the social-cognitive deficits associated with the illness can be successfully remediated. Additionally, a pilot study with patients with general anxiety disorder suggested that an EI training program focused on developing abilities to perceive, use, understand and manage emotional information not only improved EI ability and emotional self-efficacy but also to significantly reduce anxiety symptoms (Lizeretti, Oberst, Farriols, Rodriguez & Castell, 2009; Solé & Bonnin, 2012). Thus it is recommended that future studies should research this in individuals with BD for use in therapy.

Deckersbach et al. (2010) reported that their 14-session cognitive remediation program was effective in reducing depression and improving occupational and psychosocial functioning. The cognitive remediation program was designed to treat both residual depressive symptoms and cognitive impairment in people with BD, the session was delivered to each participant individually. However, the sample size for the study was small (N=18) with no control group, but it does provide an indication that further research into cognitive remediation in individuals with BD is warranted.

The hope, therefore, is that research will focus on measures to improve EI and that such improvements might lead to better long-term economic as well as functional outcomes, along with greater opportunities for social inclusion of individuals with BD (Galletly & Rigby, 2013).

6.6.3 Research issues and future considerations

In general, there are some research issues in the area of EI that need consideration. The data in this thesis were collected between 2014 to 2015. Most EI studies are cross-sectional, which highlights the need for longitudinal studies, as the EI measures' validity could change over time (Howitt & Crammer, 2005), although cross-sectional studies, generally serve as a prelude to longitudinal prospective studies (Premkumar et al., 2008). Also, the measures used in this thesis were carried out over a period of weeks and months, which may not be long enough to understand EI in individuals with BD (Mallery, 2009). A longitudinal study would enable future researchers to test for a possible interaction between BD symptoms and EI and data collection from the same participants for comparison when they are experiencing different phases of BD. It remains possible that EI will decline as individuals with BD develop more substantial symptoms and increase when individuals are euthymic or in remission and the level of EI during symptomatic periods will be a predictor of functional outcomes. The longitudinal study of EI over time will clarify if these patterns help predict outcomes.

The conflicting views and theories of the EI construct (Chapter 1) highlight the need to have an accepted general definition of the construct as the EI construct needs a conceptual base. There is a lack of research examining the relationship between self-report trait and ability measures (Mathews et al., 2004). Both of these are important to EI's construct validity (Howitt & Crammer, 2005), yet research so far has shown little correlation between these two (Matthews et. al., 2004). An under-researched area of EI is how people will react in real-life emotional situations (Lopes et al., 2003). This is particularly important for those individuals with BD since it has been characterised as a disorder of psychosocial difficulties. It could be possible that an emotionally intelligent individual according to a measure of EI may react in a different way when confronted with an emotionally arousing situation. It is recommended that future studies should address this possibility. With research on EI increasing, new measures of EI will contribute to the development of the validity and reliability of existing measures. Furthermore, previous research on EI has frequently had an imbalance of female to male respondents, which could bias results. This study found no significant gender differences, therefore it is possible that the imbalance represents who is more likely to be diagnosed with

BD and if so, a lack of difference might suggest diagnostic characteristics, rather than biological. Future studies should address this.

With regards to BD, the role of irritable state and disgust has been overlooked. Based on the findings of this thesis, this oversight needs more investigation to determine the extent to which it affects people suffering from this disorder particularly when they are experiencing the depressive phase. Furthermore, future studies should also make efforts to investigate whether the lack of EI influences the results of the measures of participant-rated or administrator-rated in different ways. These investigations would inform the development of psychological treatments that may be effective in improving psychosocial outcomes for BD.

Previous studies in non-clinical samples have reported high correlations between EI and successful social interactions (Lopes et al., 2004; Lopes et al., 2005), while low EI is correlated with poor social outcomes (Austin et al., 2005; Brackett & Mayer, 2003; Dawda & Hart, 2000). Given that the result of this research supports previous studies and reveals that individuals with BD seem to have EI difficulties, it could be expected that individuals with BD would demonstrate low EI in social situations. If this is indeed the case, further assessment on EI in individuals with BD would improve current assessment practices for BD (VanRheenen & Rosell, 2014). There is a paucity of research in this area. Further assessment of EI in individuals with BD can have important implications for clinicians and practitioners assessing and designing interventions for reduction of BD symptoms by providing information that is not available from assessing.

6.7 Limitations of the research

Three major limitations of the research can be identified. First, the quantitative and qualitative methods employed in this study relied on retrospective recall from participants who have all had many episodes and experienced the different phases of BD. As a result, we are unable to determine the extent to which retrospective recall bias could have played a role in the responses of participants. Retrospective recall bias is “a systematic error caused by differences in the accuracy or completeness of the recollections retrieved ("recalled") by study participants regarding events or experiences from the past” (Last, 2000 page 153). Also, the current work employed the same methodology as used in the reviewed literature. For example, many of the studies reviewed in Connell et al. (2012) paper also relied on retrospective recall to investigate their clinical samples.

The second limitation relates to the measure of emotion regulation strategy used. The current study relied on a self-report measure, however; some research (e.g. Levenson & Reuf, 1992) have emphasised the difficulty with using self-report to measure emotion regulation, this is because regulation of emotion is often an unconscious process. In their study, they argued that individuals are not very accurate observers and reporters of the nuances of their own emotional functioning after finding a low correlation between well-established self-report measures of emotions and performance based emotional functioning measures. However, self-report measures are a well-established method of collecting data and are frequently used in psychological research. Additionally, self-report measures of emotion regulation are the most commonly used method for assessing an individual's emotion coping skills, strategies and deficiencies (Hervas, & Jodar, 2008; Jermann, Van der Linden, d'Acremont, & Zermatten, 2006; Roemer, Lee, Salters-Pedneault, Erisman, Orsillo, & Mennin, 2009; Suslow, Donges, Kersting, & Arolt, 2000; Williams, & Wood, 2010; Zhu, Auerbach, Yao, Abela, Xiao, & Tong, 2009). Furthermore, the particular measure of emotion regulation utilised in the current study is the SEC that has not been used in previous research on clinical samples, so we are unable to ascertain if it has a good internal reliability and consistency and if it is, therefore, a reliable tool for the measurement of the regulation of emotion.

Third, there was a limitation in the experiment, all faces used in the emotion accuracy, misattribution and response time task were of Caucasians. This may have disadvantaged participants from other racial groups. Research (Elfenbein & Ambady, 2002) has found that people are better at recognizing facial emotions among people from their own racial group, although this may not have been a factor in the particular emotion accuracy results of this study, there is a possibility this could have impacted on the results of no group difference in emotion accuracy. Future face recognition tests should consider representing their participants' race in the faces used in their experiments.

6.8 Strengths of the research

Despite the limitations of this research described above, several strengths were also identified. Firstly, this study makes important, valuable contributions and fills current gaps in the dearth of literature on EI in individuals with BD. Until recently, EI in individuals with BD was rarely studied in the psychological literature. Although this has changed in recent years with studies now researching aspects of EI in individuals with BD, there are still gaps in literature about adequate theoretical models which can explain the intricate features of

emotions in individuals with BD (Power, 2005). As discussed in the introduction chapter of this thesis, existing literature has focussed on aspects of EI (perception, understanding, use of emotion to facilitate thought and regulation) in individuals with BD. This thesis has contributed to the burgeoning literature on EI and BD by helping to address this gap through measuring all EI aspects using the WLEIS to measure EI, the SEC to measure emotion regulation control and the TAS-20 to investigate alexithymia in individuals with BD as well as using a mixed method approach with three methods of investigation (questionnaire, experiment and qualitative).

A second strength of the study is the finding that irritability and disgust plays a key role in individuals with BD. The role that disgust plays in emotional disorders appears to have been overlooked in the literature (Carolan, 2009). This study along with current studies begins to address this gap and highlights the importance that irritable state and disgust cannot only be important in the study of BD but potentially also in other forms of psychopathology as well. An additional strength of this study is the use of a clinical sample.

6.9 Thesis Conclusion

The first aim of the current study was to investigate if there are differences between people with BD and people in the general population regarding their EI. The study used the WLEIS (Wong & Law, 2002) to address this aim. The results found a significant difference between individuals with BD and the control group. The total score for participants with BD was lower than that of the controls. Furthermore, the Toronto Alexithymia scale (TAS-20; Bagby, Parker, & Taylor, 1994; Bagby, Taylor, & Parker, 1994) found that individuals with BD had difficulty identifying their feelings when compared to controls. This result gave an insight to another methodology (the experiment), the experiment was a face emotional performance recognition accuracy, error and response time task. The experiment found no group difference in emotion accuracy and response time. Additionally, both groups had a high happy emotion accuracy, a quicker sad emotion response time and participants with BD had more anger emotion misattributions compared to the control group. The SEC was used to measure emotional regulation strategies in individuals with BD and control groups when regulating positive and negative emotions; the results suggested that BD individuals tend to adopt maladaptive emotion regulation strategies when regulating positive and negative emotions.

The second aim of the study was to investigate the difference in abilities to understand and make sense of positive emotions and negative emotions respectively in people with BD

compared to the controls. The study used a qualitative interview study to address this aim. The results of the qualitative study suggested that the participants with BD often seemed to recognise negative emotions but more seldom positive emotion and a lack of emotion transition knowledge for participants with BD was also found. In addition, the results also suggested that irritable state and disgust plays a major role in understanding BD as participants' narrative of their experiences illustrated that there is a severity of irritable state experience in the BD and they revealed the extent to which it affects their relationships. The results of this qualitative study are significant because it offers further insights into the psychological methodologies involved, by finding the role irritability and disgust plays in individuals with BD. These emotions have been overlooked in the literature (Federman & Thomson, 2010). However, some research suggests that irritable states and disgust may play a key role in other symptoms of emotional and mood disorders as well as in suicide and parasuicide (Power & Dalgleish, 2008). Furthermore, the results indicated for the BD participants that psychological wellbeing, life, and childhood experiences have shaped BD individual's experiences of different emotions and their perception of life.

The third aim was to investigate possible gender differences in EI and alexithymia within and between people with BD and the people in the general population. This study did not find overall gender differences in the EI and alexithymia of the participants.

The results of this thesis, therefore, lays more emphasis on the importance of EI in maintaining physical and mental health in individuals with BD, because growing research as well as this research has found lack of EI that is characterised with psychosocial difficulties (Leweke, Leichsenring, Kruse & Hermes, 2012; Lumley, Tomakowsky, & Torosian, 1997), and mental health symptoms such as increased mortality rates (Kauhanen, Kaplan, Cohen, Julkunen & Salonen, 1996) that are experienced in psychiatric disorders such as BD.

In summary, this thesis provides a valuable contribution through demonstrating that individuals with BD are likely have problems in all aspects of their EI when compared to individuals in the general population (controls). In order to improve BD symptoms and EI difficulties in individuals with BD, researchers and professionals need to collaborate in designing techniques and methods to help individuals with BD improve their EI.

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Appendix A (Information for participants and consent form)

Participant ID----

We would like to invite you to participate in the research project: "Emotional Intelligence: a study of patients with bipolar disorder"

"Emotional intelligence means the ability to identify, assess and control one's own emotions and of others"

Before you decide whether you want to take part, it is important for you to understand why the research is being done and what your participation will involve. Please take the time to read the following information carefully.

Aims:

This study seeks to investigate emotional intelligence in bipolar disorder with the following aims to determine:

- (1) The difference between the emotional intelligence of people with bipolar disorder and people in the general population.
- (2) Whether people with bipolar disorder are better able to identify and relate to positive emotions compared to negative emotions.
- (3) Possible gender differences in the emotional intelligence of people with bipolar disorder.

What is involved?

Participation in this research involves responding to a 90-item questionnaire, which will take approximately 35 minutes to complete.

Participation and withdrawal:

You may find that some of the questions that you will be asked are upsetting. If you feel unable to answer the questions, it is your right to not do so, as your participation is voluntary.

Furthermore, you may discontinue completing the questionnaire at any time and withdraw your consent for the use of information gained from it. You have the right to withdraw your data

after you have completed the survey until 3 months following your participation in the study by contacting the principal researcher and requesting the removal of your data from the database using your participant ID.

Anonymity and confidentiality:

Any personal information such as your age that is used in project reports and academic papers will be stated anonymously and anything that could identify you will be removed.

You will not be asked for any identifying information such as your name in the questionnaire. We ask you to avoid writing your name or any other individual's name anywhere on the questionnaire, and to give no further information beyond what is asked of you, especially anything that could identify you. As long as you do not provide any identifying information, your confidentiality will not be jeopardised.

The next page is a consent form you must sign to participate; these are separated from your answers so it will not compromise your anonymity.

Please turn over when you are ready.

Principal Researcher

Contact details

Ibiyemi Arowolo	Ibiyemi.Arowolo2012@my.ntu.ac.uk College of Business, Law and Social Sciences, Room 4711, Chaucer, Nottingham Trent University, Nottingham NG1 4BU
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Supervisor/research team

Contact details

Dr Eva Sundin	Eva.Sundin@ntu.ac.uk
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Participant ID -----

Consent to participate and assurance of confidentiality.

☐

I, by checking the following box, agree to participate in the project "Emotional Intelligence: a study of patients with bipolar disorder". I have been given an explanation of the study and assured that:

- I will not have to answer any questions that I find upsetting
- I may withdraw from the study at any time without having to justify my decision and may withdraw my consent for the use of any information already gained from the questionnaire
- The data from the questionnaire will not be disclosed to anyone outside the research team and will not be used for any purpose outside this project
- Any material used in project reports and academic papers will be used anonymously and will not identify me in any way.

By signing below I indicate that I am 18 years old or over, I understand my participant rights, I consent to participating in this study and for my answers to be used and read in future reports.

----- (Participant's signature)

Principal Researcher

Contact details

Ibiyemi Arowolo	Ibiyemi.Arowolo2012@my.ntu.ac.uk
-----------------	----------------------------------

Supervisor/research team

Contact details

Dr Eva Sundin	Eva.Sundin@ntu.ac.uk
---------------	----------------------

Appendix B (Sample of questionnaire completed in the quantitative study)

Participant ID -----

Please fill in the information below as appropriate

Age.....

Gender M () F ()

Diagnosis (if applicable)

What date did you receive the diagnosis?

Are you currently using any medication? Yes No

If yes, please list all medication that you currently use

.....

What is your highest level of education? Secondary school (), College (), Bachelor (),
Masters (), PhD (), other ()

If other, please specify:.....

Ethnicity: White British (), White other (), Black African/British (),
Black Caribbean /British (), Asian/British (), Other ().

If other, please specify ethnicity.....

Do you have an Occupation?

Yes () No ()

If yes, Please explain the details:.....

Do you currently or have you used cocaine, ecstasy, or any IV drugs that were not for
medical purposes?

Yes () No () Other ()

If other, please specify

Have you ever had a neurological disorder or any other problem? Yes () No ()

If yes, please specify:

The phrases below give a range of ways that people have used to describe how they handle emotionally overwhelming situations. Please mark the response which best describes how much you think each statement is true of you most of the time.

Section A (SEC)

1	2	3	4
very untrue of me	somewhat untrue of me	somewhat true of me	very true of me

I am a person who...

- | | | | | |
|---|---|---|---|---|
| 1) .. tries new ways of thinking and acting | 1 | 2 | 3 | 4 |
| 2) .. expresses my strong feelings clearly | 1 | 2 | 3 | 4 |
| 3) .. talks in depth about emotionally important topics | 1 | 2 | 3 | 4 |
| 4) .. makes careful decisions about complex situations | 1 | 2 | 3 | 4 |
| 5) .. overreacts emotionally | 1 | 2 | 3 | 4 |
| 6) .. holds values and commitments in high regard | 1 | 2 | 3 | 4 |
| 7) .. gets fed up and leaves when angered | 1 | 2 | 3 | 4 |
| 8) .. accepts help from others when necessary | 1 | 2 | 3 | 4 |
| 9) .. uses distractions to avoid painful memories | 1 | 2 | 3 | 4 |
| 10) .. becomes confused when speaking, because
of disruptive thoughts and feelings | 1 | 2 | 3 | 4 |
| 11) .. has a hard time making my feelings understood | 1 | 2 | 3 | 4 |
| 12) .. jumbles talk about past, present, and future | 1 | 2 | 3 | 4 |
| 13) .. works hard but also gets enough rest | 1 | 2 | 3 | 4 |

I am a person who...

- | | | | | | |
|-----|--|---|---|---|---|
| 14) | .. moves and acts restlessly as a way of avoiding unpleasant thoughts and feelings | 1 | 2 | 3 | 4 |
| 15) | .. has to monitor myself and/or others constantly | 1 | 2 | 3 | 4 |
| 16) | .. has strengths and weaknesses and feels competent in most situations | 1 | 2 | 3 | 4 |
| 17) | .. misperceives or misunderstands what others mean | 1 | 2 | 3 | 4 |
| 18) | .. has relationships that are usually equal and mutual | 1 | 2 | 3 | 4 |
| 19) | .. has good self-esteem | 1 | 2 | 3 | 4 |
| 20) | .. feels misunderstood and therefore blames others | 1 | 2 | 3 | 4 |
| 21) | .. participates in a group at some times and takes care of personal needs at other times | 1 | 2 | 3 | 4 |
| 22) | .. can disagree with someone and maintain the relationship with that person | 1 | 2 | 3 | 4 |
| 23) | .. ends relationships in order to avoid feelings of humiliation | 1 | 2 | 3 | 4 |

Section B (WLEIS)

1	2	3	4	5	6	7
Strongly disagree	Disagree	Moderately disagree	Neither agree or disagree	Moderately agree	Agree	Strongly agree

24. I have a good sense of why I have certain feelings most of the time. 1 2 3 4 5 6 7

25. I have good understanding of my own emotions. 1 2 3 4 5 6 7

26. I really understand what I feel. 1 2 3 4 5 6 7

27. I always know whether or not I am happy 1 2 3 4 5 6 7
28. I always know my friends' emotions from their behaviour. 1 2 3 4 5 6 7
29. I am a good observer of others' emotions. 1 2 3 4 5 6 7
30. I am sensitive to the feelings and emotions of others. 1 2 3 4 5 6 7
31. I have good understanding of the emotions of people around me. 1 2 3 4 5 6 7
32. I always set goals for myself and then try my best to achieve them. 1 2 3 4 5 6 7
33. I always tell myself I am a competent person. 1 2 3 4 5 6 7
34. I am a self-motivating person. 1 2 3 4 5 6 7
35. I would always encourage myself to try my best. 1 2 3 4 5 6 7
36. I am able to control my temper so that I can handle difficulties rationally. 1 2 3 4 5 6 7
37. I am quite capable of controlling my own emotions. 1 2 3 4 5 6 7
38. I can always calm down quickly when I am very angry. 1 2 3 4 5 6 7
39. I have good control of my own emotions. 1 2 3 4 5 6 7

Section C (TAS-20)

1	2	3	4	5
Strongly disagree	Moderately disagree	Neither agree or disagree	Moderately agree	Strongly agree

40. I am often confused about what emotion I am feeling. 1 2 3 4 5
41. It is difficult for me to find the right words for my feelings. 1 2 3 4 5
42. I have physical sensations that even doctors don't understand. 1 2 3 4 5

43. I am able to describe my feelings easily	1	2	3	4	5
44. I prefer to analyse problems rather than just describe them.	1	2	3	4	5
45. When I am upset, I don't know if I am sad, frightened, or angry.	1	2	3	4	5
46. I am often puzzled by sensations in my body.	1	2	3	4	5
47. I prefer to just let things happen rather than to understand why they turned out that way.	1	2	3	4	5
48. I have feelings that I can't quite identify.	1	2	3	4	5
49. Being in touch with emotions is essential.	1	2	3	4	5
50. I find it hard to describe how I feel about people.	1	2	3	4	5
51. People tell me to describe my feelings more.	1	2	3	4	5
52. I don't know what's going on inside me.	1	2	3	4	5
53. I often don't know why I am angry.	1	2	3	4	5
54. I prefer talking to people about their daily activities rather than their feelings.	1	2	3	4	5
55. I prefer to watch "light" entertainment shows rather than psychological dramas	1	2	3	4	5
56. It is difficult for me to reveal my innermost feelings, even to close friends.	1	2	3	4	5
57. I can feel close to someone, even in moments of silence.	1	2	3	4	5
58. I find examination of my feelings useful in solving personal problems.	1	2	3	4	5
59. Looking for hidden meanings in movies or plays distracts from their enjoyment.		2	3	4	5

Section C (CES-D)

Below is a list of the ways you might have felt or behaved. Please tell me how often you have felt this way during the past week.

0 Rarely or None of the Time (Less than 1 Day)	1 Some or a Little of the Time (1-2 Days)	2 Occasionally or a Moderate Amount of Time (3-4 Days)	3 Most or All the Time (5-7 Days)
---	--	---	---

During the past week:

60. I was bothered by things that usually don't bother me.	0	1	2	3
61. I did not feel like eating; my appetite was poor.	0	1	2	3
62. I felt that I could not shake off the blues even with help from my family or friends.	0	1	2	3
63. I felt that I was just as good as other people.	0	1	2	3
64. I had trouble keeping my mind on what I was doing.	0	1	2	3
65. I felt depressed.	0	1	2	3
66. I felt that everything I did was an effort.	0	1	2	3
67. I felt hopeful about the future.	0	1	2	3
68. I thought my life had been a failure.	0	1	2	3
69. I felt fearful.	0	1	2	3
70. My sleep was restless.	0	1	2	3
71. I was happy.	0	1	2	3
72. I talked less than usual.	0	1	2	3
73. I felt lonely.	0	1	2	3
74. People were unfriendly.	0	1	2	3
75. I enjoyed life.	0	1	2	3
76. I had crying spells.	0	1	2	3

77. I felt sad.	0	1	2	3
78. I felt that people dislike me.	0	1	2	3
79. I could not get "going."	0	1	2	3

Section D (YMRS)

Please specify one of the choices that best describes the way you have been feeling for the past week by marking the appropriate statement.

80. Elevated mood

- 1 Absent
- 2 Mildly or possibly increased
- 3 Definite subjective elevation; optimistic, self-confident; cheerful; appropriate to content
- 4 Elevated, inappropriate to content; humorous
- 5 Euphoric, inappropriate laughter, singing

81. Increased motor activity or energy

- 1 Absent
- 2 Subjectively increased
- 3 Animated; gestures increased
- 4 Excessive energy; hyperactive at times; restless (can be calmed)
- 5 Motor excitement; continuous hyperactivity (cannot be calmed)

82. Sexual interest

- 1 Normal; not increased
- 2 Mildly or possibly increased
- 3 Definite subjective increase
- 4 Spontaneous sexual content; elaborates on sexual matters; hypersexual
- 5 Overt sexual acts

83. Sleep

- 1 No decrease in sleep
- 2 Sleeping less than normal amount by up to one hour
- 3 Sleeping less than normal by more than one hour
- 4 Decreased need for sleep
- 5 No need for sleep at all

84. Irritability

- 1 Absent
- 2 Subjectively increased
- 3 Irritable at times; recent episodes of anger or annoyance
- 4 Frequently irritable; short, curt
- 5 Hostile, uncooperative

85. Speech rate and amount

- 1 No increase
- 2 Feel talkative
- 3 Increased rate or amount at times, verbose at times
- 4 Push; consistently increased rate and amount;
- 5 Pressured; uninterruptedly, continuous speech

86. Language: Thought disorder

- 1 Absent
- 2 Circumstantial; mild distractibility; quick thoughts
- 3 Distractible; loses goal of thought; change topics frequently; racing thoughts
- 4 Flight of ideas; tangentially; difficult to follow; rhyming, echolalia
- 5 Incoherent; communication impossible

87. Content

- 1 Normal
- 2 Questionable plans, new interests
- 3 Special project(s); hyper religious
- 4 Grandiose or paranoid ideas; ideas of reference
- 5 Delusions; hallucinations

88. Disruptive or aggressive behaviour

- 1 Absent
- 2 Sarcastic; loud at times, guarded
- 3 Demanding; threats
- 4 Threats, shouting
- 5 Assaultive; destructive

89. Appearance

- 1 Appropriate dress and grooming
- 2 Minimally unkempt
- 3 Poorly groomed; moderately dishevelled; overdressed
- 4 Dishevelled; partly clothed; garish make-up
- 5 Completely unkempt; decorated; bizarre garb

90. Insight

- 1 Present; admits illness; agrees with need for treatment
- 2 Possibly ill
- 3 Admits behaviour change, but denies illness
- 4 Admits possible change in behaviour, but denies illness
- 5 Denies any behaviour change

Appendix C (Pre - Interview and experiment form)

Participant ID----

Participant form – please complete if you are happy for the research investigator to contact you, to invite you to an interview/ experiment.

Title of Study: A study of emotional Intelligence in patients with bipolar disorder

- | | Please tick the box |
|---|----------------------------|
| 1. I agree that the researcher can contact me on the telephone number below to arrange a 45 – 60 minutes interview and experiment at a time and location to suit me and the researcher. | <input type="checkbox"/> |
| 2. I confirm that I have read and understood the research information sheet for the above study and had the opportunity to ask questions. | <input type="checkbox"/> |
| 3. I understand that my participation is voluntary and I am free to withdraw at any time, without giving any reason and without my medical care or legal rights being affected. | <input type="checkbox"/> |
| 4. I understand that the above researcher from Nottingham Trent University who is working on the project will have access to my personal details. | <input type="checkbox"/> |
| 5. I understand that any data or information used in any publications which arise from this study will be anonymous. | <input type="checkbox"/> |
| 6. I understand that all data will be stored securely and is covered by the data protection act. | <input type="checkbox"/> |

Name of Participant

Date

Signature

Contact telephone number:

Principal Researcher

Contact details

Ibiyemi Arowolo

Ibiyemi.Arowolo2012@my.ntu.ac.uk

Supervisor/research team

Contact details

Dr Eva Sundin

Eva.Sundin@ntu.ac.uk

Appendix D (Semi Structured Interview schedule)

Participant ID:.....

Interview length:

About the interviewee:

Age:

Gender:

Occupation:

Date:

Time:

Introduction

Hello, my name is Ibiyemi Arowolo, a PhD student at Nottingham Trent University.

Thank you for accepting to take part in an interview in this research. The interview is audio recorded view. The main reason behind this recording is to have the set of accurate data – your responses and opinions. Also it will facilitate the analysis of the data collected. Can I first of all assure you that you will remain completely anonymous and your name and any other identifying details will be kept separately from the recording and transcript of the interview. If you don't have any further question I would like to briefly introduce you to the subject of this interview.

(The interviewer will then explain details of the participant information and consent form)

This interview is to provide us with an opportunity to understand feelings in yourself and others. We are interested in the broad scope of thoughts you might have that are related to this issue. So I am not only interested in socially acceptable and easy to understand thoughts, feelings and ideas you have, but I expect you may at times say things that are even contradictory, don't worry about it, your confidentiality is very important and as said earlier, details of this interview will not be shared with a third party.

You will be asked to relate an event within the last month and how you

- 1) Perceived feelings in yourself and others,
- 2) Used feeling to explain what you did and what you were thinking and
- 3) Understood your and other persons' feelings, and
- 4) How you regulated your feelings.

Ok, so that's about it

General

- 1) How would you describe how you feel at this time?
- 2) How would you describe how you've felt recently- in the last week?
- 3) Does how you feel generally affect your daily activities?
Yes No
- 4) How much does your feelings affect your daily execution of duties
All of the time
A lot of the time
Most of the time
Sometimes
Rarely
None of the time
- 3a) If Yes, can you give an example so I can understand better?
- 3b) If No, what is happening with your feelings when you go about with your activities?
Yes No

If Yes, continue to next question

If No, please specify

Specific

- 1) Can you recall having experienced an event where both you and the other person?(s) present experienced intense feeling?
- 2) Would you say this event was positive or negative?
- 3) Used feeling to facilitate what you did and what you were thinking
- 4) Understood your and other persons' feelings
- 5) Can you explain how you have controlled your feelings in this event stated?

The next set of questions will focus on how you perceive feelings in yourself and others – how and to what extent you knew that you/the other person had feelings.

- 1) Some people will notice their feelings through looking in the mirror or hearing what other people say about them. How do you notice what you are feeling?
(In the example you gave you mention how you notice happy feelings. Is this true for angry and sad feelings as well?)
- 2) You just told me about positive/negative feelings, what about negative/positive feeling?

- 3) Some people don't tend to think much about how they feel. How often do you recognise how you are feel?
- 4) How often do you feel that you know what someone else is feeling?
- 5) Has it happened to you that you feel you know what the other person feels and they don't seem to know how they feel themselves?

The next questions would be how you used feeling to explain how you feel about certain situations.

- 1) Some people like to tell other people in words about how they feel whilst others like to show their feelings (laughing, crying, shouting). Which of this is more true for you?
- 2) Does it come easier for you to explain what you feel when you are happy/sad/angry/.....?
- 3) Is it easier for you to explain what you feel in certain situations (when at home, with family or friends) or certain time of the day?
- 4) Do you always feel a need to let others know how you feel, or do you always feel you have to keep how you feel to yourself?
- 5) Do you feel that you are responsible for how you feel?
- 6) Sometimes, we feel that someone else through their attitude or behaviour, make us feel in a certain way. Does this happen to you?

The next set of questions would be about how you understood your and other persons' feelings.

List of feelings: surprise, anger, sadness, happiness, fear and disgust.

- 1) Can you point out what feeling(s) you can recognise that you are having at a certain time? ; In the same way, please point out what feelings you think that you can recognise in someone else.
- 2) What feelings are more hard for you to recognise that you are having or that other people are having?
- 3) How easy or hard is it for you to identify how someone is feeling from the way they are talking? (Example)
- 4) Do you usually know when you are changing from having one feeling to having another? (Example)

This questions are about regulation of your feelings and others.

List of feelings: surprise, anger, sadness, happiness, fear and disgust.

- 1) How easy/hard is it for you to control the feeling of happiness/anger/sadness
- 2) How do you usually go about to control feelings of happiness/anger/sadness
- 3) Sometimes we all tend to be more childlike with our feelings. Do you feel that you ever try to stop your feelings in a more childish way?

Closure

Thank you very much for your time

We seem to have covered a great deal of ground and you have been very patient. But can you think of anything we've missed out?




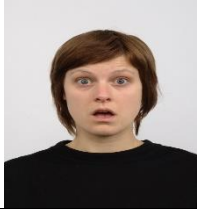


Do you have any other comments about what we have discussed, or about the research as a whole?

Do you want to see a transcript of the interview?

Please take with you, the debrief of this interview.

Would you like to continue with completing the experiment which takes about 10-15mins?

Appendix E (example of Radboud emotion faces for six emotions)

Emotion Label	Happy	Fear	Anger	Surprise	Sad	Disgust
Face						

Appendix G Ethical Approval 1

Ethics



Odell, Sandra <sandra.odell@ntu.ac.uk>

Wed 21/08/2013, 14:27

Arowolo, Ibiyemi 2012 (PGR); Sundin, Eva (Staff); Cicinski, Rachael (Staff) ↗



Reply | ▾

You replied on 03/10/2013 11:12.

Sent on behalf of Kay Wheat (Chair CREC)

Dear Ibi

Thank you for your recent submission (No. 2013/33) to the College Research Ethics Committee (CREC) on 6 August 2013 requesting ethical clearance for the project entitled: Emotional Intelligence: A study of patients with bipolar disorder. I am pleased to inform you that the CREC was happy to confirm that in its judgement there were no outstanding ethical concerns that required further discussion or exploration prior to data collection.

The Committee have one recommendation to make. Before you commence your research that you reflect on, and address if necessary, whether there might be any issues arising from how you handle exclusion.

The committee would like to wish you well in the completion of your project.

Yours sincerely
Kay Wheat
Chair CREC

Sandra Odell
College Research Support Team Leader

Appendix H Ethical Approval 2

Ethics application - APPROVED

✱ Muszanskyj, Anton <anton.muszanskyj@ntu.ac.uk> ↩ Reply | ▼
Mon 13/04/2015, 17:17
✱ Arowolo, Ibiyemi 2012 (PGR) ✕

You forwarded this message on 16/05/2015 19:39

 AMENDED Debrief IA.doc 34 KB	 AMENDED Ethics form I... 199 KB	 AMENDED Ibiyem 18 KB
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✓ Show all 5 attachments (298 KB) Download all Save all to OneDrive - Nottingham Trent University

Email sent on behalf of the Chair of the College Research Ethics Committee

Dear Ibi,

Thank you for your recent submission (No. 2015/15) to the College Research Ethics Committee (CREC) on 18 February and resubmitted on 31 March requesting ethical clearance for the project entitled *A study of emotional intelligence in patients with bipolar disorder*. I am pleased to inform you that the CREC was happy to confirm that in its judgement there were no outstanding ethical concerns that required further discussion or exploration prior to data collection. The committee would like to wish you well in the completion of your project.

Yours sincerely
Kay Wheat
Chair CREC
Anton Muszanskyj, MA MAUA

Appendix I Debrief

Participant ID----

Thank you for participating in this study “Emotional intelligence: A study of patients with bipolar disorder”.

The results generated from this research will be analysed as a group data and will help to understand emotional regulation and possible differences between the Bipolar disorder group, the general population and possible gender differences.

You are reminded that you have the right to withdraw your data within 3 months of the completion of this questionnaire by contacting the principal researcher stating your participant ID.

Any answers you give that are used in project reports and academic papers will be stated anonymously and anything that could identify you will be removed.

Principal Researcher

Contact details

Ibiyemi Arowolo	Ibiyemi.Arowolo2012@my.ntu.ac.uk
-----------------	----------------------------------

Supervisor/research team

Contact details

Dr Eva Sundin	Eva.Sundin@ntu.ac.uk
---------------	----------------------

Appendix J (Recruitment leaflet)

Will it be confidential?

Yes. Please be rest assured that all information is made anonymous and no personal details will be made public nor given to anyone outside of the research team. All of your answers are kept securely and are only used for analysis and will not be shown to anyone outside of the research team. The only time information will be passed on is if you say something that would put yourself or someone else at considerable risk.

Who is doing the research?

The lead researcher is Ibiyemi Arowolo, a PhD Psychology student at Nottingham Trent University, and Dr Eva Sundin is supervising the project. Dr Sundin can be contacted on eva.sundin@ntu.ac.uk



In the meantime if you have any questions regarding the research, please do not hesitate to contact me. I will be happy to answer any questions or queries you may have:

ibiyemi.arowolo2012@my.ntu.ac.uk

NOTTINGHAM
TRENT UNIVERSITY

NOTTINGHAM
TRENT UNIVERSITY

**Emotional intelligence: A
study of patients with
Bipolar disorder**



What is this about?

Do emotions come and go more or less of their own accord or do people exert control over their emotions and emotions of others? If people have a certain control over their emotions and others, do different people use different strategies to regulate emotions? And, if that is the case, are there strategies that are more adaptive than other strategies?

Regulation of intense and potentially unpleasant emotion is an important issue when people experience high levels of stress, which is often the case after having experienced a traumatic event. Differences in mental states can also predict how we control and regulate the emotions of one and others. This research aims to examine these differences between individuals with bipolar disorder and individuals without.

How do I take part?

Taking part in the study is really straight forward. Just complete the paper version in your hand, and contact myself via e-mail, letter, or telephone for collection or if you know someone who might be interested in participating.

ibiyemi.arowolo2012@my.ntu.ac.uk

Room 4711, Chaucer,

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Who can take part? Anyone between the ages of 18-65 years can take part.

What will happen?

To participate, you will complete a 90 item questionnaire, which will take approximately, 30 minutes. You will be given further information about the research, and then asked about your age and gender. The questionnaires are anonymous and confidential and you can leave any question(s) unanswered.

You can either return it by post, or arrange for us to collect it at your convenience.

This research has been approved by the College Research Ethics Committee, Nottingham Trent University.