EMOTIONAL INTELLIGENCE, RELATIONSHIP PERCEPTION, AND SOCIAL ANHEDONIA IN SCHIZOTYPY

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by

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EMOTIONAL INTELLIGENCE, RELATIONSHIP PERCEPTION, AND SOCIAL ANHEDONIA IN SCHIZOTYPY

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Master of Arts in Psychology, Clinical Psychology

The present study examined emotional intelligence, relationship perception, and social anhedonia in schizotypy. Approximately 2,000 undergraduates were screened for schizotypy using the Schizotypal Personality Questionnaire – Brief. From this screening, 45 persons high in schizotypy and 45 persons low in schizotypy completed measures of emotional intelligence (Mayer-Salovey-Caruso Emotional Intelligence Test), relationship perception (Relationships Across Domains), and social anhedonia (Revised Social Anhedonia Scale). Persons high versus low in schizotypy did not differ significantly in emotional intelligence or relationship perception. However, persons high in schizotypy were found to experience greater social anhedonia relative to persons low in schizotypy. Additionally, there were no correlations among emotional intelligence, relationship perception, and social anhedonia in high schizotypes. The findings extend the literature on social anhedonia in schizotypy by suggesting that it is greater in high schizotypes. Moreover, the findings contribute to the literature as only a small number of studies have
examined emotional intelligence in schizotypy and this is one of the first studies of relationship perception in schizotypy.
CHAPTER I

INTRODUCTION

Schizophrenia and Schizotypy

Schizophrenia is a severe, disabling, and often chronic mental disorder (National Institute of Mental Health, 2009; Walker, Kestler, Bollini, & Hochman, 2004). Essential to the diagnosis of the majority of mental disorders is functional impairment and schizophrenia is most likely the most impairing of disorders, with persistent and severe impairments in the ability to work, care for themselves, and socialize (American Psychiatric Association, 2000). The symptoms of schizophrenia fall into three categories: positive (delusions, hallucinations, disorganized speech, catatonic or grossly disorganized behavior), negative (flat affect, anhedonia, alogia, avolition) (American Psychiatric Association, 2000; National Institute of Mental Health, 2009; Kerns, 2006), and cognitive (poor executive functioning, impaired attention, poor working memory) (National Institute of Mental Health, 2009; Kerns, 2006). The most striking characteristic of the disorder appears to be the inappropriate, often bizarre behavior exhibited by affected individuals. Often times it is the different social behavior exhibited by schizophrenics that renders them “abnormal” (Brune, 2005). Social problems in schizophrenia are important and must not be overlooked as impairment in social functioning often begins prior to onset of psychosis (American Psychiatric Association, 2000; Brune, 2005; National Institutes of Mental Health, 2009). Social deficits frequently present prior to the time of the first episode and might be immune to antipsychotic treatment. Also, these impairments typically worsen throughout the course of the disorder, which most likely affects the relapse rate (Brune, 2005).
The prevalence of schizophrenia in adults is between 0.5 and 1.5%. The risk for developing schizophrenia is approximately ten times greater for first-degree biological relatives than for individuals in the general population. Some of these relatives also have an increased risk of developing another schizophrenia-spectrum disorder. The precise boundaries of the schizophrenia-spectrum remain unclear, but it is believed to include such disorders as schizotypal personality disorder and schizoaffective disorder. Although evidence is limited, schizoid, paranoid, and avoidant personality disorders are thought to belong to the schizophrenia-spectrum of disorders as well (American Psychiatric Association, 2000).

Schizotypal Personality Disorder (SPD) is a long term and persistent disorder most commonly presenting during early adulthood (American Psychiatric Association, 2000). It is characterized by an extensive pattern of interpersonal and social deficits consisting of reduced capacity for and acute discomfort in social relationships, perceptual and cognitive disturbances (e.g., paranoid ideation, magical thinking), and eccentric behavior (American Psychiatric Association, 2000). SPD may become apparent in childhood or adolescence with social anxiety, solitariness, bizarre fantasies, poor peer relationships, etc. (American Psychiatric Association, 2000). Conceptually, SPD can be viewed as a less severe version of schizophrenia due to the shared positive symptoms (American Psychiatric Association, 2000). However, it is more commonly seen in the population with a prevalence rate of approximately 3% (American Psychiatric Association, 2000). This disorder typically runs a constant course, with only a few individuals developing schizophrenia or another schizophrenia-spectrum disorder in the future (American Psychiatric Association, 2000). SPD is more prevalent among the first-
degree biological relatives of schizophrenic individuals rather than among individuals of the general population (American Psychiatric Association, 2000).

To a certain extent schizotypic traits are present in healthy individuals and are normally distributed in the nonclinical population. Schizotypy is conceptualized as a non-clinical manifestation of the same underlying biological factors that give rise to schizophrenia and other schizophrenia-spectrum disorders (Fonseca-Pedrero, Lemos-Giraldez, Paino, & Muniz, 2011; Kerns, 2005) without a psychotic breakdown (Cannon, van Erp, & Glahn, 2002). This construct can also be viewed as “a style of personality expression found within the normal adult population that is conceived to be a non-clinical manifestation of the same underlying biological and cognitive factors that, when seen in a more extreme form, also cause clinical psychotic symptoms (e.g., delusions, paranoia, and idiosyncratic behavior) in patients with schizophrenia and allied psychotic disorders” (Langdon & Coltheart, 2001). Schizotypy can in some cases exhibit itself as schizophrenia as well as Cluster A personality disorders: schizotypal, schizoid, and paranoid (Miller & Lenzenweger, 2012). It is suggested that there is a phenomenological continuum between schizophrenia and nonclinical schizotypy based on evidence showing that high scores on schizotypy scales meet partial fulfillment of the SPD diagnostic criteria. Further evidence is found in healthy first-degree biological relatives of schizophrenic individuals and their high scores on schizotypy measures (Raine, 1991). It has been demonstrated in family-genetic studies that there is an increased risk of SPD (10-15%) in relatives of schizophrenic individuals (Asarnow et al., 2001; Kendler, Gruenberg, & Kinney, 1994), as well as an increased risk of schizophrenia (4-5%) and
SPD (9-18%) in relatives of SPD individuals (Battaglia, Bernardeschi, Franchini, Bellodi, & Smeraldi, 1995; Thaker, Adami, Moran, Lahti, & Cassady, 1993).

Persons high in schizotypy may experience atypical perceptual experiences, beliefs that most others disagree with, anxiety around others, and suspiciousness, but not necessarily dysfunction (Fonseca-Pedrero et al., 2011; Kline et al., 2012). Similar to schizophrenia, schizotypal traits fall into a 3-factor organization involving positive (e.g., perceptual distortions, eccentric appearance or behavior, magical ideation), negative (e.g., social anhedonia, physical anhedonia, constricted or inappropriate affect), and disorganized (e.g., disorganized behavior and speech) symptoms (Phillips & Seidman, 2008; Vollema & Hoijtink, 2000; Henry, Bailey, & Rendell, 2007). Those individuals who receive high scores on schizotypy self-report measures are at a higher risk of developing schizophrenia-spectrum disorders in the future (Fonseca-Pedrero et al., 2011; Meehl, 1990).

Social Cognition

Social cognition has many definitions, but is most often defined as the mental operations, which influence social interactions based on ones ability to perceive, interpret, and process social information in response to the behaviors, intentions, and dispositions of others (Addington, Saeedi, & Addington, 2006; McCleery et al., 2012; Green, Oliver, Crawley, Penn, & Silverstein, 2005). In other words social cognition refers to one’s ability to establish mental representations about oneself, others, and relationships between oneself and others (Jahshan & Sergi, 2006; Aguirre, Sergi, & Levy, 2008), and to the ability to use these representations to direct social behavior so as to effectively interact with and understand others (Horan, Kern, Green, & Penn, 2008). The most
common domains of social cognition studied in psychopathology research include emotion perception, social perception, theory of mind, attributational bias (Sergi, Rassovsky, Nuechterlein, & Green, 2006), and social knowledge (Kee et al., 2009; Green et al., 2005).

Emotion perception refers to how an individual uses and perceives emotions (Green et al., 2005; Horan et al., 2008). Emotion perception tasks require participants to label, match or point to emotions from facial expressions, gestures, or voice tone. Deficits in emotion perception are widely documented in schizophrenia (Horan et al., 2008). Research on emotion perception in schizophrenia has most often asked participants to label typical emotions, such as angry, happy, surprised, sad, ashamed, and disgust, which are expressed by voice recordings or motionless pictures of faces (Kee et al., 2009). Years of research have found that schizophrenia patients repeatedly show poorer performance on these tasks compared to controls (Kee et al., 2009; Kee, Green, Mintz, & Brekke, 2003), indicating that they are less able to precisely appraise and perceive vocal and facial emotion expression (Kee et al., 2003). One study used a sample of 28 long-term inpatients with schizophrenia to assess the association between social adjustment, perception of facial emotions, and interpersonal behavior on the ward. Their results indicated that the patients’ performance on facial emotion discrimination and identification tasks was correlated with their ability to maintain personal hygiene and appearance, and to make suitable social contacts (Mueser et al., 1996; Kee et al., 2003). Such impairments are consistently associated with poor work functioning and independent living, two aspects of community functioning (Kee et al., 2009).
Social perception is one’s ability to judge social rules and roles (i.e. status and intimacy) and social context. It can also refer to how an individual perceives relationships with others as well as how they perceive cues produced by a single individual (Green et al., 2005; Horan et al., 2008). It involves labeling interpersonal features of a situation such as veracity, intimacy status, mood state, and status, or using knowledge to decide what is typical during specific social situations. Individuals with schizophrenia have consistently shown impairments in social perception skills (Horan et al., 2008; Penn, Ritchie, Francis, Combs, & Martin, 2002; Addington et al., 2006), as measured by paper-and-pencil measures assessing knowledge of the features of social situations or performance measures involving judgment making about short videotaped vignettes (Horan et al., 2008). A study conducted by Penn et al. (2002) found that individuals with schizophrenia have deficits in the ability to use social contextual information. Impairments in social perception are associated with poor cognitive impairment (Addington et al., 2006) and social functioning (Addington et al., 2006; Bjorkquist & Herbener, 2013). Impairments in social functional outcome include quality of life and social competence, skills, and behavior. Individuals with schizophrenia have a difficult time using nonverbal and verbal social cues to make judgments about vague social situations and make conclusions about situational events. Such impairments potentially negatively influence any social behaviors requiring demanding, goal-oriented cognitive processing (i.e., judging, reasoning, making inferences) (Bjorkquist & Herbener, 2013).

Similar to social perception is social knowledge, also known as social schema. This refers to one’s awareness of the goals, rules, and roles that distinguish social situations and facilitate social interactions. An example of this would involve the
individual’s knowledge of the role a doctor plays in a hospital. This aspect of social cognition connects with social perception as they both involve social cue identification, which requires knowledge to decide what is typical during specific social situations (Green et al., 2005). Individuals with schizophrenia have been found to have impairments in social knowledge compared to healthy controls. This finding suggests that they are less impressionable to interpersonal cues (Addington et al., 2006). According to Matsui, Arai, Yonezawa, Sumiyoshi, Suzuki, and Kurachi (2009), impairments in social knowledge are related to poor quality of life as well as a diminished capacity for social initiative and empathy.

Theory of mind, sometimes referred to as social intelligence, mentalizing, or mental state attribution, involves one’s ability to deduce a conclusion about the beliefs and intentions of others (Green et al. 2005; Horan et al., 2008; McCleery et al., 2012). It can also be referred to as an individuals’ ability to understand that the mental states of others differ from their own. This involves one’s ability to understand irony, false beliefs, metaphors, hints, deceptions, intentions, and humor. Individuals with schizophrenia frequently show impairments on an array of tasks involving theory of mind abilities (Horan et al., 2008). Deficits in theory of mind are thought to play a role in the maintenance and etiology of psychotic symptoms (Brune, 2005; McCleery et al., 2012). These impairments may negatively impact social functioning in individuals with schizophrenia due to frequent misperceptions of others intentions (McCleery et al., 2012). Similarly, research has concluded that impairments in theory of mind are also observed in schizotypes. Schizotypal traits found in the non-clinical population seem to be related to impairments in attributing mental states to others and understanding false-beliefs.
Attributional bias refers to how an individual explains the cause of positive and negative outcomes as well as how their attribution of the cause provides a basis for the meaning of events (Green et al., 2005; Horan et al., 2008; DeVylder, Ben-David, Kimhy, & Corcoran, 2012). In research on schizophrenia, attributional bias has mainly been studied in the framework of comprehending the psychological mechanisms of paranoid beliefs and persecutory delusions. For example, research has indicated that persons with persecutory beliefs typically blame others for negative events rather than thinking of the cause as situational (Horan et al., 2008). Individual’s reports of hallucinatory experiences appear to be influenced by biases towards making an extrinsic attribution for private experiences and events (Levine, Jonas, & Serper, 2004). The overstated self-serving bias in individuals with schizophrenia may be state specific, as it’s only seen in the context of acute paranoia with simultaneous grandiose delusions (DeVylder et al., 2012).

The clinical importance of impairments in areas of social cognition has been demonstrated by important associations with the many aspects of poor functional outcome in individuals with schizophrenia (Addington et al., 2006; Couture et al., 2006; Kee et al., 2009). Successful social interactions are dependent upon an individual’s ability to show sensitivity to the behaviors and feelings of others as well as the ability to communicate and convey cues to draw out those desired responses (Miller & Lenzenweger, 2012). Deficits in social cognition appear to be important determinants of
vocational and social outcomes in schizophrenia (Miller & Lenzenweger, 2012; Green et al., 2005). Problems related to social cognition including ineffectively interacting with one’s social environment leads to misperceptions, unexpected reactions to and from other individuals (Horan et al., 2008), and eventually social withdrawal (Green et al., 2005). Such problems are expected to specifically have an impact on family, peer, and romantic relationships as well as school and work behavior (Horan et al., 2008). A study conducted by Aguirre et al. (2008), found that schizotypes showed social cognitive impairments relative to healthy individuals in the following domains: social perception, emotion perception, relationship perception, social knowledge, and theory of mind. Various studies in schizophrenia have emphasized that abilities involving emotion perception predict later independent living and work functioning, and is connected to social competence (Kohler, Walker, Martin, Healey, & Moberg, 2010).

**Emotional Intelligence**

Emotional intelligence is an important aspect of social cognition. Originally, emotional intelligence was defined as an ability, which involved the accurate expression and perception of emotion, as well as an ability to understand emotions and adapt emotions while utilizing one’s knowledge of emotions in thought processes (Crowne, 2013). Emotional intelligence has also been defined as “the ability to process emotional information, particularly as it involves the perception, assimilation, understanding, and management of emotion,” (Mayer & Cobb, 2000). Moreover, emotional intelligence is the ability to take in emotional information in order to determine the meaning of emotions and their connections to each other as well as being able to utilize emotional information as the foundation for decision making and thought (Lyusin, 2006). Four
branches of emotional intelligence have been identified: (1) perceiving emotions, (2) utilizing emotion(s) to facilitate thought, (3) analyzing and understanding emotion to employ emotional knowledge, and (4) reflective regulation of emotions to help promote intellectual and emotional growth (Mayer, Salovey, & Caruso, 2008; Rieck & Callahan, 2013; Lopes et al., 2004). Perceiving emotions, the first branch, involves the ability to accurately identify the feelings of other people. The second branch, using emotions to facilitate thought, involves the ability to construct emotions and integrate the way you feel into the way you think. Understanding emotions, the third branch, involves the ability to understand why emotions occur and what causes them. The fourth branch, managing emotions, involves the ability to utilize your emotions by coming up with an effective strategy to help an individual achieve a goal, rather than allowing them self to be negatively affected by their emotions (Mayer, Salovey, & Caruso, 2002).

**Emotional intelligence in schizophrenia.** Due to its association with poor social functioning, social cognition is now of interest in research on schizophrenia (Addington, Penn, Woods, Addington, & Perkins, 2008). Long has it been suspected that affect recognition disturbances, one aspect of social cognition, play a significant role in schizophrenia (Kerns, 2005; Edwards, Jackson, & Pattison, 2002; Kee et al., 2009). This occurs at all stages of the illness, typically with impairments in discrimination and identification of facial affect (Addington et al., 2008). In fact, deficits in facial recognition might be one of the most serious and pervasive features of interpersonal problems for schizophrenic patients such as poor social functioning and poor interpersonal communication (Edwards et al., 2002). Those chronic patients with schizophrenia that are suffering from negative symptoms appear to experience greater
impairments in their capability to use appropriate social skills and recognize emotions from the facial expressions, voices, or gestures of others (Brune, 2005).

The National Institute of Mental Health Measurement and Treatment Research to Improve Cognition in Schizophrenia (MATRICS) committee has recommended the MSCEIT for assessing social cognition as they found it to have significant potential as a valid and reliable assessment of the emotional components of social cognition in individuals with schizophrenia (Eack et al., 2010). Research has found that individuals with schizophrenia perform much worse than healthy controls across various domains of emotion processing (Kee et al., 2009; Edwards et al., 2002). For example, a study conducted by Kee et al. (2009) found that individuals with schizophrenia performed worse than controls on the overall emotional intelligence score produced by the MSCEIT as well as on three of the four subtests (managing, understanding, and identifying emotions). This indicates that persons with schizophrenia show deficits in changes among and between emotions, their regulation of emotions, and understanding of emotion blends (Kee et al., 2009). Lower scores on the MSCEIT have been found to be correlated with clinical symptoms of schizophrenia (i.e., more negative and disorganized symptoms) and how these individuals function daily (Kee et al., 2009; Edwards, Jackson, & Pattison, 2002). Deficits on these tasks are frequently associated with poor functioning in the community (i.e., work functioning and independent living) (Kee et al., 2009; Kee et al., 2003; Couture, Penn, & Roberts, 2006). Impairments in one’s ability to perceive emotions have been found to be related to the individuals’ psychotic symptoms (e.g., thought disorder, hallucinations, and bizarre behaviors) and negative symptoms (e.g., anergia, alogia) (Kee et al., 2003). When looking at negative symptoms, all components
of the MSCEIT have been found to be significantly related to flat affect. Individuals with schizophrenia who have clinically significant flat affect show more deficits in recognizing sad and happy emotions. When compared to healthy controls these individuals show more severe deficits in making a distinction about the intensity of these emotions (Gur et al., 2006; Kee et al., 2009).

**Emotional intelligence in schizotypy.** There are a large amount of studies showing that patients with schizophrenia are greatly impaired in their ability to recognize the emotions of others through voices, gestures, or facial expressions (Brune, 2005). However, there are few studies that have assessed emotional intelligence in schizotypy and schizophrenia-spectrum disorders. It is suggested by studies of related constructs of emotion processing that one’s ability to regulate emotions, identify emotions, and attend to one’s emotions show different patterns of impairments depending on whether the individual is high in disorganized, negative, or positive schizotypy (Aguirre et al., 2008). Evidence from research has shown that individuals with schizotypy experience more negative emotions, less positive emotions, and greater emotionality, which suggests that individuals with schizotypy will experience difficulty in managing emotions to foster growth and in utilizing them as a cognitive mechanism. It has been suggested by previous research that emotional disturbances potentially play a role in the positive symptoms experienced in schizotypy and schizophrenia (Kerns, 2005).

A study conducted by Aguirre et al. (2008), found that overall emotional intelligence as well as two aspects of emotional intelligence (managing emotions and perceiving emotions) were impaired in individuals with high schizotypy. This finding is consistent with previous studies of social cognition in individuals with schizotypy that
have recognized deficits in emotion perception (Langdon & Coltheart, 2004). A study conducted by Aguirre et al. (2008) also found that schizotypes are impaired in their emotional intelligence. This is further demonstrated in a study conducted by Morrison, Brown, and Cohen (2013), in which schizotypes performed much worse than healthy controls on their ability to manage emotions (i.e., regulating emotions). Similar to individuals with schizophrenia, persons with SPD demonstrate significant deficits in the ability to recognize emotions through facial expressions in the left hemisphere (Mikhailova, Vladimirova, Iznak, Tsusulkovskaya, & Sushko, 1996). Kerns (2005) proposed that positive schizotypy seemed to demonstrate a lack of affective priming as well as affect in recognition memory. Also, individuals with schizotypy are ambivalent towards their emotions and have problems interpreting and identifying them (Kerns, 2006). One study assessed whether emotional traits are connected to schizotypy and found that schizotypes reported less emotional clarity, and higher attention and intensity to emotions (Kerns, 2005; Yoon, Kang, & Kwon, 2008). Additionally, another study investigating the relationship between emotional variables and personality disorders found that persons with Cluster A personality disorders, as well as schizotypy, lacked emotional clarity and the ability to manage emotional states (Yoon et al., 2008).

Individuals must have emotional skills and the ability to manage their own emotions to be successful in social situations (Crowne, 2013). Emotional intelligence is considered to be substantial for social interactions. This is because emotions serve social and communicative functions, which convey messages regarding an individuals intentions and thoughts, and how they coordinate social encounters (Lopes et al., 2004). Individuals with low emotional intelligence are likely to have low social intelligence
because they have less effective emotional interactions with others, which hinder their social interactions (Crowne, 2013). Sociability involves being able to relate to emotions positively, while continuous negative affect causes people to stay away (Lopes et al., 2004). Therefore, it is thought that individuals with schizotypy and other schizophrenia-spectrum disorders will have similar impairments to those of individuals with schizophrenia such as the ability to make suitable social contacts, poor social functioning, interpersonal communication, work functioning, and independent living.

**Relationship Perception: A Promising Area of Research**

Social relationships are dependent on relationship perception, which refers to the ability to make conclusions about and understand relationships with others. Also, it is the ability to inevitably recognize the relational model used by others in order to arrange a likely social interaction (Sergi et al., 2009). The relational models theory proposed by Fiske (1992) includes four essential cognitive/affective models based on how individuals seek, construct, evaluate, and interpret social relationships. The market pricing relational model explains relationships in terms of equity or proportionality by utilizing socially significant ratios (e.g., investment or effort, on time rates of return, money). The equality matching relational model often influences relations with colleagues and friends based on equal reciprocity, demonstrated by keeping track of obligations and favors, and turn-taking. The authority ranking relational model symbolizes relationships in hierarchically ordered and asymmetrical terms established by differences in power, status, and knowledge. Lastly, the communal sharing relational model constructs relationships in terms of shared identity and equivalence. In the communal sharing relational model,
members of a dyad or group see themselves as one, which is most often exhibited by family and romantic relationships (Fiske, 1992; Allen, Haslam, & Semedar, 2006).

Relationship perception is impaired in schizophrenia and contributes to the social dysfunction, such as their ability to get along with family and friends (Sergi et al., 2009). However, there are few studies examining relationship perception, an aspect of social cognition, in schizophrenia and schizotypy due to the lack of a measure looking at how competent individuals are in relationship perception. Various social cognition measures evaluate how individuals make conclusions about and understand other individuals. This tends to be accomplished by observing how individuals perceive social cues, such as gestures or facial expressions. Our understanding of social cognition in schizophrenia would greatly improve if more research were conducted on impaired relationship perception in schizophrenia. Also, this would help to explain differences in the functional status of schizophrenic persons that other aspects of social cognition may not explain (Sergi, et al., 2009). Few, if any, previous studies have specifically examined impairments in relationship perception, an aspect of social cognition, in persons with schizotypy. The current study would be one of the first to do so.

**Relationship perception in schizophrenia.** A study conducted by Sergi et al. (2009) was the first to not only examine relationship perception in schizophrenic individuals, but to create a measure, Relationships Across Domains (RAD), to assess relationship perception. Overall, they found that schizophrenic outpatients performed notably poorer on the RAD than the undergraduates and healthy comparison participants on the relational models (e.g., authority ranking, market pricing, communal sharing, equality matching). This indicated that their understanding of the relational models and
overall understanding of relationship perception was impaired compared to the two healthy samples. Schizophrenic individuals ability to get along with family and friends appeared to be impacted by relationship perception. This was found to be related to relationships with friends, relationships with spouse and family, independent self-care/living. However, work productivity, mainly examined by hours and days of work, was not related. The associations examined by Sergi et al. (2009) support the connection between functional status and social cognition in schizophrenia. Even though work productivity did not correlate with relationship perception the findings indicate that relationship perception could potentially affect ones ability to maintain employment such as the inability to get along with coworkers and employers (Sergi et al, 2009).

Social Anhedonia

A key symptom of schizophrenia, anhedonia, is defined as the reduced ability to experience pleasure in situations that are normally pleasurable (Chan et al., 2012; Blanchard, Mueser, & Bellack, 1998) and withdrawal from them (Vilardaga, Estevez, Levin, & Hayes, 2012). It can also be defined as the inability to experience pleasant emotions. Anhedonia is stable over time and often resistant to psychosocial and pharmacological interventions, and is related to a large amount of occupational and social dysfunctions (Cohen, Callaway, Najolia, Strauss, & Larsen, 2012). Social anhedonia refers to the decreased ability to experience pleasure in social interactions (Blanchard, Brown, & Horan, 2001; Blanchard, Collins, Aghevli, Leung, & Cohen, 2011) and displays itself as an indifference to others (Blanchard, Gangestad, Brown, & Horan, 2000). A 10-year follow-up study conducted by Vilardaga et al. (2012), found that individuals who score high on measures of social anhedonia have been found to have
higher incidences of clinical psychosis (21%). Also, social anhedonia has been found to be a more promising indicator of psychosis than physical anhedonia (Rey, Jouvent, & Dubal, 2009; Vilardaga et al., 2012).

**Social anhedonia in schizophrenia.** Social anhedonia has frequently been found to be a key symptom of schizophrenia (Chan et al., 2012) and is associated with the social deficits commonly seen in this disorder (Blanchard et al., 2001). Elevated social anhedonia is found to be a predictor of poor social functioning in individuals with schizophrenia (Vilardaga et al., 2012). Individuals with schizophrenia consistently reported higher levels of social anhedonia than controls (Blanchard et al., 2001; Chan et al., 2012). This is a pattern that is constant during both chronic and early stages of schizophrenia and across symptom states (outpatients vs. inpatients) (Chan et al., 2012). A study conducted by Blanchard et al. (2001) found that even though schizophrenic patients and controls improved at a similar rate, schizophrenic patients indicated that they experienced significantly greater social anhedonia at follow-up compared to controls. Thus, indicating that high social anhedonia is a constant vulnerability indicator of schizophrenia (Blanchard et al., 2001).

Previous studies with schizophrenic patients have indicated that high scores on the Social Anhedonia Scale (SAS) is related to negative symptoms, such as avolition, lessened social drive, and lessened emotional range. Likewise, studies drawn from nonpatient samples of social anhedonic individuals have found a lack of social competency with the social deficits seen in schizophrenic patients with negative symptoms (Kwapil, 1998). Individuals with high scores on the Revised Social Anhedonia Scale (RSAS) had elevated levels of schizoid, paranoid, and schizotypal symptoms (Chan
et al., 2012). Individuals prone to schizophrenia, such as persons with schizotypal personality disorder, experienced anhedonia similar to clinically diagnosed schizophrenics (Kwapil, 1998). Furthermore, a 10-year follow-up study conducted by Chan et al. (2012), found that future development of schizophrenia-spectrum disorders can be predicted by social anhedonia.

**Social anhedonia in schizotypy.** The appearance of social deficits is one of the main themes analyzed in schizophrenia-spectrum disorders (Brown, Silvia, Myin-Germeys, Lewandowski, & Kwapil, 2008). Like in schizophrenia, a core feature of schizotypy is anhedonia, particularly social anhedonia (Cohen et al., 2011; Vilardaga et al., 2012; Blanchard et al., 2000; Rey et al., 2009). Social anhedonia assessed by the Social Anhedonia Scale (SAS) have been found to be stable and elevated over time (Rey et al., 2009; Horan, Brown, & Blanchard, 2007), and relatives of schizophrenic individuals experience elevated social anhedonia (Blanchard et al., 2009; Blanchard et al., 2000). Therefore, this possibly indicates a long lasting trait in the pathology (Rey et al., 2009). According to previous research, nonclinical college students with high scores in social anhedonia have a greater incidence of schizophrenia-spectrum disorders (Blanchard et al., 2001; Martin, Cicero, & Kerns, 2012), including schizotypal and schizoid personality disorders (Martin et al., 2012), and tend to experience more psychotic-like symptoms than individuals with low social anhedonia (Rey et al., 2009). A 10-year follow-up conducted by Martin et al. (2012), found that 28% of individuals with high social anhedonia were diagnosed with a schizophrenia-spectrum personality disorder: 17% paranoid, 17% schizoid, and 11% schizotypal. Blanchard et al. (2000) reported that proband diagnosis in relatives of schizophrenic patients is significantly
predicted when measured by the SAS abbreviated version compared to relatives of controls.

Social Anhedonia is a promising starting point for recognizing schizotypic individuals as it is an important aspect of the negative symptoms of schizophrenia and schizotypy (Brown et al., 2008). Elevated social anhedonia in nonclinical individuals have been shown to present with neurocognitive, psychophysiological, perceptual, and clinical characteristics corresponding to individuals with a genetic risk for schizophrenia and schizophrenic individuals themselves (Blanchard et al., 2011; Horan et al., 2007). It has been found in cross-sectional studies that high scores of social anhedonia display characteristics expected with the risk for schizophrenia-spectrum disorders including elevated schizoid, paranoid, and schizotypal personality disorder symptoms, social withdrawal, cognitive slippage, and more psychotic-like experiences. Furthermore, persons with social anhedonia proved to have more ratings of negative symptoms indicating that individuals with higher negative and positive characteristics of schizotypy are successfully identified by social anhedonia (Blanchard et al., 2011).

Often reported in individuals with social anhedonia are interpersonal and social deficits, such as greater reluctance with friends (Rey et al., 2009), fewer friends (Rey et al., 2009; Vilardaga et al, 2012; Blanchard et al., 2011), impaired overall social adjustment, intimate relationships of poorer quality (Rey et al., 2009; Blanchard et al., 2000), lower incidence of marriage and dating (Rey et al., 2009; Vilardaga et al, 2012; Blanchard et al., 2000), poor social skills, social withdrawal, decreased perspective-taking ability, social disinterest (Brown et al., 2008), and social anxiety (Brown et al., 2008; Vollema & van den Bosch, 1995). Current social isolation and withdrawal, and a
reduced need for and enjoyment from social contact are related to elevated scores on the SAS (Rey et al., 2009).

In terms of social outcome, social anhedonia is correlated in non-clinical samples with poorer social adjustment and less perceived social support (Llerena, Park, Couture, & Blanchard, 2012; Blanchard et al., 2011). Elevated social anhedonia is also correlated with problems in sustained attention and working memory (Vilardaga et al, 2012). Persons with social anhedonia described their family relationships as less supportive and helpful, having more conflict, and as less cohesive than controls (Blanchard et al., 2011).

**Significance and Hypotheses of the Present Study**

Studies of psychometric schizotypes or individuals diagnosed with SPD are beneficial to researchers interested in establishing key features of schizophrenia because they can avoid possible confounds likely present in schizophrenia samples such as the usage of antipsychotic medication, recurrent hospitalizations, and long-term social isolation (Aguirre et al., 2008; Langdon & Coltheart, 2004). Also, research on schizotypy in a non-clinical population helps us: 1) study traits that are a predisposition to rather than a consequence of psychosis, 2) understand the normal variations in schizotypal traits that exist in the general population, and 3) develop preventative interventions for schizophrenia. Specifically, the development of early interventions will allow for a reduction or even prevent the amount of risk and incidence of individuals developing schizophrenia. Moreover, a review of the literature suggests that only a small number of studies have examined emotional intelligence in schizotypy and this is one of the first studies of relationship perception in schizotypy. The present study will contribute to the literature by investigating these domains.
The first objective of the proposed study is to examine emotional intelligence in persons with schizotypy. It is hypothesized that persons high in schizotypy will be impaired in their emotional intelligence relative to persons low in schizotypy. The second objective of the proposed study is to examine relationship perception in persons with schizotypy. It is hypothesized that persons high in schizotypy will be impaired in their relationship perception relative to persons low in schizotypy. A third objective of the proposed project is to examine social anhedonia in persons with schizotypy. It is hypothesized that persons high in schizotypy will have greater social anhedonia relative to persons low in schizotypy. A fourth objective is to examine correlations among emotional intelligence, relationship perception, and social anhedonia in high schizotypes. It is hypothesized that emotional intelligence and relationship perception will be positively correlated to each other, and negatively correlated to social anhedonia in persons high in schizotypy.
CHAPTER II
METHOD

Participants

Approximately 2000 undergraduate students at California State University, Northridge were administered the 22-item Schizotypal Personality Questionnaire-Brief Version (SPQ-B) as part of the Department of Psychology’s pre-testing during two consecutive semesters. Participants were informed that some of them might be contacted to participate in completing a battery of tests depending on their performance on the screening test. This pre-screener divided the students into two groups. Those individuals who scored between 15 and 22 were placed into the high schizotypy group, while those who scored between 0 and 1 were placed into the low schizotypy group. From this subject pool, 45 persons high in schizotypy and 45 persons low in schizotypy (a total of 90 undergraduate students) participated in this study after providing their written informed consent and receiving a copy of the research bill of rights. For their participation in the study, they received 10 research credits in their lower division psychology courses. Participants in this study were expected to be at least 18 years of age and current students at California State University, Northridge.

Procedure

All participants were administered a one-hour and forty minute battery that measured emotional intelligence (Mayer-Salovey-Caruso Emotional Intelligence Test), relationship perception (Relationships Across Domains), and social anhedonia (Revised Social Anhedonia Scale). Participants were administered the battery in small groups, with each participant in their own research cubicle, by undergraduate and graduate research
assistants who were trained to administer the battery of tests using standard instructions, and who were blind to each subject’s group status at the time of administration.

**Measures**

Each of the four variables, schizotypy, emotional intelligence, relationship perception, and social anhedonia, were assessed using measures from previous research.

**Schizotypy.** The Schizotypal Personality Questionnaire – Brief (SPQ-B; Raine & Benishay, 1995) is a 22-item version of the 74-item Schizotypal Personality Questionnaire with the dichotomous response of yes and no. The SPQ-B yields a total score, as well as three subscales: 1) cognitive-perceptual (magical ideation, delusional atmosphere, unusual perceptual experiences, suspiciousness and referential thinking), 2) interpersonal (no confidants, social anxiety, constricted affect), and 3) disorganized (eccentric behavior, odd speech). The cognitive perceptual deficits factors include constructs of ideas of reference, magical thinking, odd beliefs, paranoid ideation, and unusual perceptual experiences. The interpersonal deficits factors involve constructs of constricted affect, lack of close friends, social anxiety. In addition, the disorganized factors consist of constructs of odd speech and behavior. According to Raine and Benishay (1995), the correlations and internal reliabilities between the full 74-item SPQ and the 22-item SPQ-B are reported as being moderately high, ranging from .72 to .80 and from .89 to .94. Test-retest reliabilities, done in two-month intervals, were found to range between .86 and .95. Correlations between the subscales of the SPQ-B and clinical measures of SPD range from .63 to .73, indicating that the SPQ-B has good psychometric properties, with the exception of the disorganized factor ($r = .36$).
**Emotional Intelligence.** The Mayer-Salovey-Caruso Emotional Intelligence Test Version 2.0 (MSCEIT; Mayer et al., 2002) assesses emotional intelligence. This 141-item, 8-subtest measure, administered on the computer, assesses overall emotional intelligence and four components or branches of emotional intelligence: (a) perceiving emotions, (b) facilitating thought, (c) understanding emotions, and (d) managing emotions. In the first branch, there are two subtests that assess the ability to perceive emotions from photographed facial expressions and photographed landscapes or artwork (alpha = .91). In the second branch, there is the facilitation subtest and the sensations subtest. In the facilitation subtest the participant is required to evaluate the usefulness of three different emotions (e.g., sadness, surprise, and happiness) during a specific cognitive task or behavior. In the sensations subtest the participant is required to generate an emotion and then use the emotion in other cognitive processes (alpha = .90). In the third branch, there are two subtests that examine the participant’s understanding of how emotions may be combinations of other emotions (blends subtest) and their understanding of how emotions progress during social interactions (changes subtest) (alpha = .77). Lastly, in the fourth branch, there are two subtests that examine the participant’s appreciation for ways of regulating emotions in oneself and others (alpha = .87). The total score on the MSCEIT is an estimate of emotional intelligence.

**Relationship Perception.** Relationships Across Domains (RAD; Sergi et al., 2009) assesses relationship perception. This 75-item paper and pencil measure assesses competence in relationship perception. This measure contains 25 vignettes, consisting of two-to-four sentences, which involve a differently named female-male dyad whose interpersonal behaviors are compatible with one of the four relational models (communal
sharing, authority ranking, equality matching, market pricing). Sergi et al. (2009) reported good internal consistency for the matched comparison participants (alpha = .86) and schizophrenia outpatients (alpha = .85), but slightly lower internal consistency for the undergraduate group (alpha = .68).

**Social Anhedonia.** The Revised Social Anhedonia Scale (RSAS; Eckblad et al., 1982), is a 40-item paper and pencil, true/false, measure that assesses deficits in the ability to experience pleasure from non-physical stimuli such as other people, talking, exchanging expressions of feelings (e.g., “A car ride is much more enjoyable if someone is with me” keyed false). The scores on the RSAS were indicative of negative schizotypy in the present study.
CHAPTER III
RESULTS

T-tests Examining Differences Between Persons with High and Low Schizotypy

Emotional intelligence. Persons with high and low schizotypy did not differ on emotional intelligence, as indexed by the total score on the MSCEIT ($t = -.52, p > .05$), nor did they differ on any of the four branches: perceiving emotions ($t = -.40, p > .05$), utilizing emotions to facilitate thought ($t = .08, p > .05$), understanding emotions ($t = -.50, p > .05$), and managing emotions ($t = .65, p > .05$); see Table 1. These findings suggest that persons high in schizotypy were not impaired in their ability to take in emotional information in order to determine the meaning of emotions and their connections to each other as well as being able to utilize emotional information as the foundation for decision-making and thought relative to persons low in schizotypy.

Table 1

Mean Performance on MSCEIT

<table>
<thead>
<tr>
<th></th>
<th>High (N=45)</th>
<th>Low (N=45)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M (SD)</td>
<td>M (SD)</td>
</tr>
<tr>
<td>MSCEIT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A (Perceiving)</td>
<td>106.1 (20.9)</td>
<td>104.5 (19.1)</td>
</tr>
<tr>
<td>B (Facilitating)</td>
<td>106.4 (20.5)</td>
<td>106.7 (18.5)</td>
</tr>
<tr>
<td>C (Understanding)</td>
<td>106.3 (20.8)</td>
<td>104.2 (20.8)</td>
</tr>
<tr>
<td>D (Managing)</td>
<td>100.4 (14.2)</td>
<td>102.7 (19.5)</td>
</tr>
<tr>
<td>Total</td>
<td>102.5 (16.4)</td>
<td>100.6 (17.2)</td>
</tr>
</tbody>
</table>

Relationship perception. Persons with high and low schizotypy did not differ on relationship perception, as indexed by the total score produced by the RAD ($t = .61, p > .05$), nor did they differ on any of the four relational models: authority ranking ($t = .81, p > .05$), communal sharing ($t = 1.05, p > .05$), market pricing ($t = -.60, p > .05$), and equality matching ($t = .46, p > .05$); see Table 2. These findings suggest that persons high
in schizotypy were not impaired in their ability to make conclusions about and understand relationships with others, as well as their ability to recognize the relational model used by others in order to arrange social interactions, relative to persons low in schizotypy.

Table 2

Mean Performance on RAD

<table>
<thead>
<tr>
<th></th>
<th>High (N=45)</th>
<th>Low (N=45)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authority Ranking</td>
<td>14.5 (2.0)</td>
<td>14.8 (1.7)</td>
</tr>
<tr>
<td>Communal Sharing</td>
<td>19.4 (2.9)</td>
<td>20.0 (1.9)</td>
</tr>
<tr>
<td>Market Pricing</td>
<td>9.7 (2.2)</td>
<td>9.4 (1.9)</td>
</tr>
<tr>
<td>Equality Matching</td>
<td>11.1 (2.0)</td>
<td>11.3 (2.0)</td>
</tr>
<tr>
<td>Total</td>
<td>54.6 (6.2)</td>
<td>55.3 (5.1)</td>
</tr>
</tbody>
</table>

Social anhedonia. A significant difference was found, indicating that persons high in schizotypy experience greater social anhedonia relative to persons low in schizotypy; \( t = -4.5, p < .001 \) (see Table 3). This indicates that high schizotypes have a reduced ability to experience pleasure from non-physical stimuli when compared to low schizotypes.

Table 3

Mean Performance on RSAS

<table>
<thead>
<tr>
<th></th>
<th>High (N=45)</th>
<th>Low (N=45)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RSAS</td>
<td>12.3 (6.7)</td>
<td>6.7 (5.0)</td>
</tr>
</tbody>
</table>

Pearson Correlations Examining Bivariate Relationships Between Variables

In order to determine the significance and direction of the relationship between variables, a Pearson correlation was conducted; see Table 4. No significant correlations
were found between overall emotional intelligence, relationship perception, and social anhedonia in high schizotypes.

Table 4

*Correlations Between Emotional Intelligence, Relationship Perception, and Social Anhedonia in High Schizotypy*

<table>
<thead>
<tr>
<th>Measures</th>
<th>Social Anhedonia</th>
<th>Emotional Intelligence</th>
<th>Relationship Perception</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PC (Sig.)</td>
<td>PC (Sig.)</td>
<td>PC (Sig.)</td>
</tr>
<tr>
<td>Social Anhedonia</td>
<td>1</td>
<td>-.04 (NS)</td>
<td>-.18 (NS)</td>
</tr>
<tr>
<td>Emotional Intelligence</td>
<td>-.04 (NS)</td>
<td>1</td>
<td>.14 (NS)</td>
</tr>
<tr>
<td>Relationship Perception</td>
<td>-.18 (NS)</td>
<td>.14 (NS)</td>
<td>1</td>
</tr>
</tbody>
</table>

*Note. PC = Pearson correlation; Sig. = Significance; NS = No significance*
CHAPTER IV
DISCUSSION

The purpose of the present study was to examine: (1) differences between high and low schizotypy on emotional intelligence, (2) differences between high and low schizotypy on relationship perception, (3) differences between high and low schizotypy on level of social anhedonia, and (4) correlations among emotional intelligence, relationship perception, and social anhedonia in high schizotypes.

Summary of Findings

Contrary to previous research, persons high in schizotypy did not differ from those low in schizotypy on emotional intelligence. According to previous research schizotypes have been found to have impaired emotional intelligence impairments in two branches of emotional intelligence (managing emotions and perceiving emotions) when compared to controls (Aguirre et al., 2008; Levy, 2005). Additionally, Morrison et al. (2013) found impairments in high schizotypes ability to manage their emotions. However, to the researchers knowledge, there have been no studies that match the results found in the current study, with the exception of there being no significant differences between high and low schizotypes on the utilizing emotions to facilitate thought and understanding emotions branches of emotional intelligence.

Contrary to the hypothesis, there was no significant difference between high and low schizotypy on relationship perception. This construct has been found to show deficits in individuals with schizophrenia relative to undergraduates and healthy comparison participants (Sergi et al., 2009). That study found that schizophrenia outpatients were impaired in their overall relationship perception as well as their understanding of specific
relational models. Be that as it may, this was the first study to examine relationship perception comparing high and low schizotypes. From the results it would appear that while relationship perception is impaired in schizophrenia, it is not the case for undergraduates with high schizotypy.

Although individuals with schizophrenia are shown to have impairments in emotional intelligence and relationship perception, this does not appear to be the case for healthy individuals identified as falling along a continuum of schizotypal features. In addition, the use of college students who are believed to function at a higher level, may account for the absence of differences on the MSCEIT and RAD between the two groups. Individuals with schizotypal traits may experience impairment in their interpersonal relationships, but it is reasonable to expect that all participants, whether they are high or low schizotypes, have adequate knowledge of emotions and relational models due to their capacity to learn from prior experience, pick up on cues, and recall important information, which may have affected their performance on these measures. It is expected that if a community sample with a stronger genetic link to schizophrenia or a more symptomatic population of schizotypes were to have been studied the present study may have confirmed the three major hypotheses.

Additionally, those classified as high schizotypes may have been the result of false positives produced by the SPQ-B. To check if this may have impacted performance on these measures the researcher went through the scores produced by the SPQ-B and eliminated those highs who scored 15 and 16, which fall at the lower end of the cutoff. While doing so did not produce significant results, it did, however, dramatically bring the significance level of all but two domains of relationship perception (communal sharing
and market pricing) closer to a p-value of .05. Furthermore, no participant received a score above 19 on the SPQ-B. Results may have been different if more participants received scores consisting of 20-22, as these individuals would experience more schizotypal traits, such as experiencing atypical perceptual experiences, beliefs that most others disagree with, anxiety around others, and suspiciousness, but not necessarily dysfunction (Fonseca-Pedrero et al., 2011; Kline et al., 2012).

Similar to previous research, persons high in schizotypy reported significantly greater social anhedonia (as evidenced by their scores on the RSAS) than persons low in schizotypy. This is a considerable finding in this study as both groups were drawn from the same college population. These results are consistent with the notion that social anhedonia is a core aspect of the negative symptoms of both schizophrenia and schizotypy (Brown et al., 2008). Prior research supports social anhedonia’s association with social dysfunction in persons on the schizotypy spectrum (Blanchard et al., 2001).

Contrary to the hypothesis, no correlations were found among emotional intelligence, relationship perception, and social anhedonia in high schizotypes, indicating that there is no relationship among these variables. To the researchers knowledge there is no previous research for or against this finding. While highs were found to experience greater social anhedonia, which is defined as the decreased ability to experience pleasure in social interactions (Blanchard, Brown, & Horan, 2001; Blanchard, Collins, Aghevli, Leung, & Cohen, 2011) than lows, there is no evidence to suggest that an increase in this variable would produce a decrease in emotional intelligence and relationship perception. It is possible that individuals high in schizotypy have adequate knowledge of emotions and relational models, but simply do not enjoy social situations, which would suggest no
relationship (i.e., correlation) between the variables. Similarly, according to the results an 
individuals’ comprehensive understanding of emotions and their ability to accurately 
identify the type of relationship two individuals are engaging in does not imply that there 
is a relationship between the two.

**Limitations and Implications for Practice**

This thesis will add to the understanding of emotional intelligence, relationship 
perception, and social anhedonia in schizotypy, however, the study was limited in several 
ways. First, the present study used a convenience sample, which was drawn from one 
university in southern California. If the sample were selected from the community, the 
results may have been different than what was obtained in the present study. 
Additionally, since the participants were college level students, the findings are not 
generalizable to schizotypes in the general population. Thus, future research may benefit 
from using a community sample.

Second, the 22-item SPQ-B was used in lieu of the 74-item SPQ for high and low 
schizotypes in order to quickly screen a large number of individuals in a short amount of 
time. Previous studies have chosen to use the full version of the SPQ, rather than the 
SPQ-B, since it is proven to have stronger criterion and discriminant validity. As a result, 
the 22-item SPQ-B may have produced more false positives in the high schizotypes, 
which potentially altered the results of the present study. Therefore, future studies may 
want to use the 74-item SPQ to reduce the number of potential false positives.

Despite such limitations, this study provides useful information about individuals 
high in schizotypy. The present study supports the idea that social anhedonia is a key 
feature of schizophrenia, which has been found to be associated with the social deficits
commonly seen in such individuals (Blanchard et al., 2001), as well as a predictor of poor social functioning (Vilardaga et al., 2012). Furthermore, this study supports the development of early interventions for schizotypes to reduce their risk of developing schizophrenia or schizophrenia-spectrum disorders. This study suggests that it is important to not only identify schizotypes early on, but to also implement interventions to reduce social deficits, such as social skills training, to prevent the development of schizophrenia and other schizophrenia-spectrum disorders.
References


APPENDIX A

SPQ - B

Please answer each item by circling Y (Yes) or N (No). Answer all items even if unsure of your answer. When you have finished, check over each one to make sure you have answered them all.

Y  N  1. People sometimes find me aloof and distant.

Y  N  2. Have you ever had the sense that some person or force is around you, even though you cannot see anyone?

Y  N  3. People sometimes comment on my unusual mannerisms and habits.

Y  N  4. Are you sometimes sure that other people can tell what you are thinking?

Y  N  5. Have you ever noticed a common event or object that seemed to be a special sign for you?

Y  N  6. Some people think that I am a very bizarre person.

Y  N  7. I feel I have to be on my guard even with friends.

Y  N  8. Some people find me a bit vague and elusive during a conversation.

Y  N  9. Do you often pick up hidden threats or put-downs from what people say or do?

Y  N  10. When shopping, do you get the feeling that other people are taking notice of you?

Y  N  11. I feel very uncomfortable in social situations involving unfamiliar people.

Y  N  12. Have you had experiences with astrology, seeing the future, UFOs, ESP or a sixth sense?
<table>
<thead>
<tr>
<th></th>
<th></th>
<th>13. I sometimes use words in unusual ways.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>14. Have you found that it is best not to let other people know too much about you?</td>
</tr>
<tr>
<td>Y</td>
<td>N</td>
<td>15. I tend to keep in the background on social occasions.</td>
</tr>
<tr>
<td>Y</td>
<td>N</td>
<td>16. Do you ever suddenly feel distracted by distant sounds that you are not normally aware of?</td>
</tr>
<tr>
<td>Y</td>
<td>N</td>
<td>17. Do you often have to keep an eye out to stop people from taking advantage of you?</td>
</tr>
<tr>
<td>Y</td>
<td>N</td>
<td>18. Do you feel that you are unable to get &quot;close&quot; to people?</td>
</tr>
<tr>
<td>Y</td>
<td>N</td>
<td>19. I am an odd, unusual person.</td>
</tr>
<tr>
<td>Y</td>
<td>N</td>
<td>20. I find it hard to communicate clearly what I want to say to people.</td>
</tr>
<tr>
<td>Y</td>
<td>N</td>
<td>21. I feel very uneasy talking to people I do not know well.</td>
</tr>
<tr>
<td>Y</td>
<td>N</td>
<td>22. I tend to keep my feelings to myself.</td>
</tr>
</tbody>
</table>
APPENDIX B

Sample Questions from the MSCEIT

SECTION B

1. What mood(s) might be helpful to feel when creating new, exciting decorations for a birthday party?

<table>
<thead>
<tr>
<th>Not Useful</th>
<th>Useful</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. annoyance</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>b. boredom</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>c. joy</td>
<td>1 2 3 4 5</td>
</tr>
</tbody>
</table>

SECTION C

7. Tatiana was annoyed that a coworker took credit for a project, and when he did it again she felt _________.

a. anger 
b. annoyance 
c. frustration 
d. startled 
e. depression

SECTION D

3. Jane did not know when her bills were due, how many more bills would be arriving soon, or if she could pay them. Then her car began making strange noise and her mechanic said it would cost so much to fix that it might not be worth it. Jane can’t fall asleep easily, she wakes up several times at night, and she finds herself worrying all the time. How effective would each of the following actions be in reducing her worry?

Action 1: Jane tried to work out what she owed, how much was due, and when it was due.

a. Very ineffective  b. Somewhat ineffective  c. Neutral  d. Somewhat effective  e. very effective

Action 2: Jane learned deep-relaxation techniques to calm herself down.

a. Very ineffective  b. Somewhat ineffective  c. Neutral  d. Somewhat effective  e. very effective
Action 3: Jane got the name of a financial planner to help her figure out how to manage her finances properly.

- Very ineffective
- Somewhat ineffective
- Neutral
- Somewhat effective
- Very effective

Action 4: She decided to look for a job that paid more money.

- Very ineffective
- Somewhat ineffective
- Neutral
- Somewhat effective
- Very effective

SECTION F

5. Imagine you are feeling closed, dark, and numb. How much is that feeling like each of the following?

<table>
<thead>
<tr>
<th>Not Alike</th>
<th>Very Much Alike</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. sad</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>b. content</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>c. calm</td>
<td>1 2 3 4 5</td>
</tr>
</tbody>
</table>
APPENDIX C

RSAS

Please read each of the statements below and circle True (T) or False (F)

T F 1. Having close friends is not as important as many people say.
T F 2. I attach very little importance to having close friends.
T F 3. I prefer watching television to going out with other people.
T F 4. A car ride is much more enjoyable if someone is with me.
T F 5. I like to make long distance phone calls to friends and relatives.
T F 6. Playing with children is a real chore.
T F 7. I have always enjoyed looking at photographs of friends.
T F 8. Although there are things that I enjoy doing by myself, I usually seem to have more fun when I do things with other people.
T F 9. I sometimes become deeply attached to people I spend a lot of time with.
T F 10. People sometimes think that I am shy when I really just want to be left alone.
T F 11. When things are going really good for my close friends, it makes me feel good too.
T F 12. When someone close to me is depressed, it brings me down also.
T F 13. My emotional responses seem very different from those of other people.
T F 14. When I am alone, I often resent people telephoning me or knocking on my door.
T F 15. Just being with friends can make me feel really good.
T F 16. When things are bothering me, I like to talk to other people about it.
T    F    17. I prefer hobbies and leisure activities that do not involve other people.
T    F    18. It’s fun to sing with other people.
T    F    19. Knowing that I have friends who care about me gives me a sense of security.
T    F    20. When I move to a new city, I feel a strong need to make new friends.
T    F    21. People are usually better off if they stay aloof from emotional involvements with most others.
T    F    22. Although I know I should have affection for certain people, I don’t really feel it.
T    F    23. People often expect me to spend more time talking with them than I would like.
T    F    24. I feel pleased and gratified as I learn more and more about the emotional life of my friends.
T    F    25. When others try to tell me about their problems and hang-ups, I usually listen with interest and attention.
T    F    26. I never had really close friends in high school.
T    F    27. I am usually content to just sit alone, thinking and daydreaming.
T    F    28. I’m much too independent to really get involved with other people.
T    F    29. There are few things more tiring than to have a long, personal discussion with someone.
T    F    30. It made me sad to see all my high school friends go their separate ways when high school was over.
<table>
<thead>
<tr>
<th></th>
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<th>31. I have often found it hard to resist talking to a good friend, even when I have other things to do.</th>
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<tbody>
<tr>
<td>T</td>
<td>F</td>
<td>32. Making new friends isn’t worth the energy it takes.</td>
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<tr>
<td>T</td>
<td>F</td>
<td>33. There are things that are more important to me than privacy.</td>
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<tr>
<td>T</td>
<td>F</td>
<td>34. People who try to get to know me better usually give up after awhile.</td>
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<tr>
<td>T</td>
<td>F</td>
<td>35. I could be happy living all alone in a cabin in the woods or mountains.</td>
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<tr>
<td>T</td>
<td>F</td>
<td>36. If given the choice, I would much rather be with others than be alone.</td>
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<tr>
<td>T</td>
<td>F</td>
<td>37. I find that people too often assume that their daily activities and opinions will be interesting to me.</td>
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<tr>
<td>T</td>
<td>F</td>
<td>38. I don’t really feel very close to my friends.</td>
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<tr>
<td>T</td>
<td>F</td>
<td>39. My relationships with other people never get very intense.</td>
</tr>
<tr>
<td>T</td>
<td>F</td>
<td>40. In many ways, I prefer the company of pets to the company of people.</td>
</tr>
</tbody>
</table>
APPENDIX D

Sample Vignettes from the RAD

Authority Ranking:

IV. Information about Mark and Kelly

As far as Mark and Kelly are concerned, the farm belongs to Mark; Kelly is only a “guest” staying there as long as Mark wishes. Kelly is careful not to interrupt Mark when he is speaking, but he interrupts her sometimes.

Mark and Kelly in other situations

Using what you now know about this pair, circle “yes” or “no” to indicate whether the pair would act or think in the way described in each of the following statements.

10. When asked for a donation by a Salvation Army worker, Mark and Kelly decided they should both give $10. (Yes) (No)

11. Mark tells Kelly if he does not like something she cooked, but Kelly does not tell Mark if she does not like something he cooked. (Yes) (No)

12. Kelly is always thinking about how much time she should spend with Mark and whether being with Mark is a good use of her time. (Yes) (No)

Communal Sharing:

IX. Information about George and Nancy

If George or Nancy is hungry, they just help themselves freely to the food in the refrigerator. They recently had to decide where to go on vacation. Because tropical beaches always make them feel closer to each another, they decided to vacation in Hawaii.

George and Nancy in other situations
Using what you now know about this pair, circle “yes” or “no” to indicate whether the pair would act or think in the way described in each of the following statements.

25. When George and Nancy go to a restaurant, they share the food they order, sometimes eating off the same plate. (Yes) (No)

26. Nancy is careful not to interrupt George when he is speaking, but he interrupts her sometimes. (Yes) (No)

27. When George broke his arm mountain climbing, Nancy felt almost as if her own arm was broken. It seemed as if they each felt the pain, and sometimes they even talk about “When we broke our arm.” (Yes) (No)

*Market Pricing:*

**XII. Information about Martin and Vivian**

Last month, Martin and Vivian made candy apples together. Martin brought nine pounds of apples while Vivian brought three pounds. Also, Martin put in three pounds of caramel, while Vivian put in one pound of caramel. So when the candy apples were done, Martin took home three quarters of them. Last weekend, when Vivian wanted to go fishing, Martin agreed to let her borrow his boat in exchange for half the fish she would catch.

*Martin and Vivian in other situations*

Using what you now know about this pair, circle “yes” or “no” to indicate whether the pair would act or think in the way described in each of the following statements.

34. When Vivian is hungry, she just takes whatever she wants from Martin’s refrigerator. (Yes) (No)
35. Martin worked four days a week building the cabin while Vivian worked on it just one day a week. So when they sold the cabin, Martin got four fifths of the price and Vivian got one fifth of the price. (Yes) (No)

36. Martin and Vivian hug each other when they meet after not seeing each other for a while. (Yes) (No)

Equality Matching:

XIII. Information about Bill and Sarah

When working together, Bill and Sarah watch each other to make sure they each do no more and no less than the other person. Last weekend, Bill brought Sarah a basket of apples from his tree, so this weekend Sarah brought Bill a pie she baked.

Bill and Sarah in other situations

Using what you now know about this pair, circle “yes” or “no” to indicate whether the pair would act or think in the way described in each of the following statements.

37. When Bill and Sarah go to a restaurant, they share the food they order, often eating off the same plate. (Yes) (No)

38. Bill and Sarah take turns on the computer to ensure that they get equal time. (Yes) (No)

39. When Bill won the award, Sarah figured that Bill’s tremendous investment of time and energy had finally paid off. (Yes) (No)
APPENDIX E

California State University, Northridge
CONSENT TO ACT AS A HUMAN RESEARCH PARTICIPANT

Emotions, Relationships, and Enjoyment in Social Activities

You are being asked to participate in a research study, “Emotions, Relationships, and Enjoyment in Social Activities,” a study conducted by Michelle Pattison as part of the requirements for the M.A. degree in Clinical Psychology, Department of Psychology. Participation in this study is completely voluntary. Please read the information below and ask questions about anything that you do not understand before deciding if you want to participate. A researcher listed below will be available to answer your questions.

RESEARCH TEAM
Researcher:
Michelle Pattison
Department of Psychology
18111 Nordhoff St.
Northridge, CA 91330-8255
(818) 282-5803
michelle.pattison.395@my.csun.edu

Faculty Advisor:
Dr. Mark Sergi, Ph.D
Department of Psychology
18111 Nordhoff St.
Northridge, CA 91330-8255
(818) 677-7352
mark.sergi@csun.edu

PURPOSE OF STUDY
The purpose of this research study is to examine how individuals a) perceive, understand, and manage emotions, b) perceive relationships, and c) experience pleasure in social situations.

SUBJECTS
Inclusion Requirements
You are eligible to participate in this study if you are at least 18 years of age or older and are currently enrolled at CSUN.

Time Commitment
This study will involve approximately 1 hour and 40 minutes of your time.

PROCEDURES
The following procedures will occur: you will complete three tests, some of which are administered on a computer, while others are paper-and-pencil. The first will look at how you perceive, understand, and manage emotions. This will take approximately 30-45 minutes. Next, you will complete a measure, which examines how you perceive relationships, taking approximately 35 minutes. Lastly, you will complete a measure that looks at the pleasure you experience in social situations such as other people, talking, and exchanging expressions of feelings. This will take approximately 5 minutes.

RISKS AND DISCOMFORTS
The possible risks and/or discomforts associated with the procedures described in this study include fatigue, due to the length of the entire battery. This study involves no more than minimal risk. There are no known harms or discomforts associated with this study beyond those encountered in normal daily life. To help minimize the risk of fatigue you are allowed to take a break at any time and a short break will be allowed between each measure. To help reduce any concerns you may have you should know that you have the right to not answer any question or even discontinue your participation at any time without losing the course credit you have already earned and without affecting your relationship with California State University, Northridge, the Department of Psychology, the researcher, or any of your course instructors. If you experience any emotional discomfort during or after your involvement in this study please feel free to contact Dr. Sergi at (818) 677-7352 or, in urgent situations, contact the University Counseling Center, located in Room 520 of Bayramian Hall, at (818) 677-2366.

BENEFITS

Subject Benefits
You may not directly benefit from participation in this study.

Benefits to Others or Society
Your participation in this study has the potential to benefit others and society by increasing our knowledge of how individuals perceive, understand, and manage emotions, perceive relationships, and experience pleasure in social situations.

ALTERNATIVES TO PARTICIPATION
The only alternative to participation in this study is not to participate.

COMPENSATION, COSTS AND REIMBURSEMENT

Compensation for Participation
You will receive credit for an eligible course at the rate of 1 point per 15 minutes of participation, for a total of 7 research credits.

CONFIDENTIALITY

Subject Identifiable Data
All identifiable information that will be collected about you will be removed and replaced with a code. A list linking the code and your identifiable information will be kept separate from the research data and destroyed at the end of each semester.
Data Storage
All data/documentation collected as part of this project will be maintained in separate locked file cabinets in a secured research lab. In other words, any identifying data about you will be kept separate from non-identifying data in separate locked file cabinets. Any research data kept electronically will consist only of data that is non-identifying and it will be stored on a laptop computer that is password protected.

Data Access
The researcher and Dr. Sergi named on the first page of this form will have access to your study records. Any information derived from this research project that personally identifies you will not be voluntarily released or disclosed without your separate consent, except as specifically required by law. Publications and/or presentations that result from this study will not include identifiable information about you.

Data Retention
The researcher intends destroy all data/documentation with identifiable information at the end of each semester. The researcher intends to keep the de-identifiable research data for approximately 5 years until the research is published and/or presented and then it will be destroyed.

Mandated Reporting
Under California law, the researcher(s) are required to report known or reasonably suspected incidents of abuse or neglect of a child, dependent adult or elder, including, but not limited to, physical, sexual, emotional, and financial abuse or neglect. If any researcher has or is given such information, he or she may be required to report it to the authorities.

IF YOU HAVE QUESTIONS
If you have any comments, concerns, or questions regarding the conduct of this research please contact the research team listed on the first page of this form.

If you have concerns or complaints about the research study, research team, or questions about your rights as a research participant, please contact Research and Sponsored Projects, 18111 Nordhoff Street, California State University, Northridge, Northridge, CA 91330-8232, or phone 818-677-2901.

VOLUNTARY PARTICIPATION STATEMENT
You should not sign this form unless you have read it and been given a copy of it to keep. Participation in this study is voluntary. You may refuse to answer any question or discontinue your involvement at any time without penalty or loss of benefits to which you might otherwise be entitled. Your decision will not affect your relationship with California State University, Northridge. Your signature below indicates that you have read the information in this consent form and have had a chance to ask any questions that you have about the study.

I agree to participate in the study.
<table>
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<th>Participant Signature</th>
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<td>Printed Name of Participant</td>
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<td>Researcher Signature</td>
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<td>Printed Name of Researcher</td>
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Emotions, Relationships, and Enjoyment in Social Activities

California State University, Northridge

Debriefing

Emotional skills, such as perceiving, understanding, and managing emotions, are important for emotional and social adaptation. Social relationships depend on how an individual perceives their relationships, as well as how they manage their emotions. Individuals’ who experience pleasure in social situations tend to report more interpersonal and social success, such as fewer reluctance with friends, a larger number of friends, good social adjustment, intimate relationships of higher quality, and higher incidence of marriage and dating. This study examines individuals’ knowledge of emotions, relationship perception, and the pleasure experienced in social situations. For more information about these issues, please refer to the following references:

