

ABSTRACT

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Willingness to Associate in Peers of Social
Anhedonics.

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Despite promising research on social anhedonia as an indicator of schizotypy, little is known about the social correlates of this construct. The current study examined peer relationships and emotional expressivity of individuals classified as socially anhedonic. Specifically, this study sought to examine to what degree diminished emotional expressivity in anhedonics occurs, and if it may contribute to social difficulties. Social anhedonics and controls were recruited from a college sample. The roommates of participants were also contacted and asked to complete ratings of emotional expressivity, willingness to interact, and a social pleasure scale. Social anhedonics reported diminished emotional expressivity and also reported poorer social adjustment when compared to controls. Anhedonics did not differ from controls in their ratings of school or familial adjustment. Contrary to expectations, groups did not differ with respect to peer-rated expressivity, willingness to associate or social pleasure.

REPORTS OF EMOTIONAL EXPRESSIVITY AND WILLINGNESS TO
ASSOCIATE IN PEERS OF SOCIAL ANHEDONICS.

By

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Dedication

To Mrs. Beth Malchiodi, who taught me to love research and to never give up in my search for statistical significance and to Dr. Amy Eshleman, who prepared me for the trial of graduate school.

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Chapter 1.

Introduction

Social Relationships

Social relationships are an important and often rewarding part of life. Social psychological research has shown interpersonal relationships to be a major source of happiness for people throughout various stages of life (Berscheid, 1985; Berscheid & Peplau, 1983; Berscheid & Reis, 1998). In non-clinical samples, the absence of such relationships has been shown to result in feelings of loneliness, worthlessness, hopelessness, helplessness, powerlessness, and alienation (Baumeister & Leary, 1995; Dykstra, 1995; Gerstein & Tesser, 1987; Hartup & Stevens, 1997; Myers & Diener, 1995; Peplau & Perlman, 1982; Strobe & Stroebe, 1996; Weiss, 1973). A small subgroup of the general population, however, appears to derive little or no pleasure from social interactions. Individuals who report these deficits have been classified as socially anhedonic.

This paper will begin with a review of the history and origins of social anhedonia. The review will be followed by a discussion of the current research and clinical importance of social anhedonia including its relationship to schizophrenia. An overview of the social deficits observed in social anhedonics, as well as schizophrenics, will ensue, ending in a discussion of the possible role of emotional expressivity in the development and maintenance of these deficits. Finally, the importance of the inclusion of peer reports will be addressed.

Origins of Schizotaxia, Schizotypy and Social Anhedonia

Schizotaxia: A Genetic Predisposition to Schizophrenia-Spectrum Disorders

Over forty years ago, Meehl (1962) proposed a theory of a heritable neural integrative defect he called schizotaxia. Schizotaxia is a biological predisposition to the possible later development of schizophrenia and schizophrenia-spectrum disorders. Meehl predicted the central nervous system to be the most affected physiological structure, showing signs of pervasive abnormality. More recent studies have shown support for the genetic basis of schizophrenia. Gottesman (1991) found the risk of developing schizophrenia to increase with increased genetic relatedness to an individual with schizophrenia. For example, monozygotic twins of schizophrenics were found to be at the highest risk, with a 48% lifetime risk of developing schizophrenia, while first cousins (third degree relatives) were at a 2% risk, as compared to a 1% lifetime risk in the general population. Adoption studies have also supported the theory of a genetic predisposition to schizophrenia with findings indicating greater prevalence of schizophrenia in those genetically related to the schizophrenic adoptees than in their adoptive families (Kety, Rosenthal, Wender, Schulsinger & Jacobsen, 1975; Kety, 1976; Kety, Wender, Jacobsen, Ingraham, Jansson, Faber et. al, 1994).

Schizotypy: Personality Features in the Genetically Predisposed

Meehl (1962, 1989) also proposed that individuals with schizotaxia would develop a *personality organization* he called schizotypy, after Rado's (1956) original use of the term. There are four core behavioral traits of schizotypy: cognitive slippage, anhedonia, interpersonal aversiveness and ambivalence. Cognitive slippage

refers to mild thought disorder or associative dyscontrol. Anhedonia (physical and social) is a deficit in the experience of pleasure. Rejection expectation, distrust of others, and feeling as though one's love will not be reciprocated in an equivalent manner is referred to as interpersonal aversiveness. Although these behavioral traits can be common, their severity is mediated by social learning and environmental factors (Meehl, 1962).

Approximately 90% of schizotypes will fall into varying degrees of functionality ranging from highly functional to sub-threshold schizophrenia-spectrum like behavior (Gottesman, 1991; Kwapil, 1998). It is conjectured that the remaining 10% of schizotypes will eventually develop schizophrenia (Meehl, 1990). This prevalence is much greater than the occurrence of schizophrenia in the general population (0.5%-1.5%; American Psychiatric Association, 2000); therefore schizotypal traits could be clinically useful as an indicator of high risk individuals. Pioneers in the field of measuring these traits were Chapman, Chapman and Raulin (1976). They developed several psychometric measures to identify individuals at high risk using Meehl's (1962, 1989) schizotypy model.

Current Research and Clinical Importance of Social Anhedonia

Chapman, et al. (1976) developed the physical anhedonia scale (PhyAnh: Chapman, Chapman & Raulin, 1976) and the social anhedonia scale (SocAnh: Chapman et al., 1976) to measure stable individual differences in the ability to experience pleasure. The PhyAnh scale measures one's ability to experience pleasure

related to taste, sight, smell, and touch. The SocAnh scale measures one's ability to experience pleasure as a result of interpersonal interactions.

Originally, the developers of the anhedonia scales believed the Physical Anhedonia Scale to be the more useful of the two scales. This belief was a result of the original theorists Rado (1956) and Meehl (1962, 1989), whose work described largely biological deficits. It was also believed that social anhedonia was likely to be affected by social pressure and social desirability biases (Chapman et al., 1976). Both assumptions were not supported by later research. First, social anhedonia was found to be the more useful of the two scales, after a revision of the original social anhedonia scale removed items that tapped into social anxiety rather than social anhedonia (Eckblad, Chapman, Chapman & Mislove, 1982). The revised scale tapped into the less common, schizoid withdrawal originally intended. Studies using the revised social anhedonia scale (Eckblad, Chapman, Chapman & Mislove, 1982) found it to be a robust indicator of the later development of schizophrenia-spectrum disorders (Chapman, Kwapil, Eckblad & Ziner, 1994; Gooding, Tallent & Matts, 2005; Kwapil, 1998). Secondly, studies have also shown social anhedonia to be stable across time within individuals diagnosed with schizophrenia (Blanchard, Horan, & Brown, 2001). These findings, (reviewed below) suggest that social anhedonia may be a promising indicator of Meehl's Schizotypy.

Social Anhedonia in Clinical Samples

Elevations of social anhedonia have been seen in clinical samples, utilizing the Revised Social Anhedonia Scale (described above). Katsanis, Iacono and Beiser

(1990) found elevated levels of social anhedonia in first episode psychotic patients. Blanchard, Mueser and Bellack (1998) found higher levels of social anhedonia in their outpatient schizophrenia sample than in their control group. A more recent study (Camisa, Bockbrader, Lysaker, Rae, Brenner & O'Donnell, 2005) examined the levels of social anhedonia in schizophrenia patients, schizophrenia-spectrum personality disorder patients and controls. Consistent with prior research the highest levels of social anhedonia were found in patients diagnosed with schizophrenia followed by patients diagnosed with a schizophrenia-spectrum personality disorder and the lowest levels of social anhedonia were reported by non-psychiatric controls (Camisa, Bockbrader, Lysaker, Rea, Brenner, & O' Donnell, 2005). These findings are consistent with Meehl's conjecture that anhedonia is prevalent in schizophrenia and schizophrenia-spectrum disorders.

Although anhedonia is a characteristic of schizophrenia, an important question concerns the specificity of this finding. An accumulation of research now indicates that elevated anhedonia is present in mood disorder patients (e.g. Berenbaum, & Oltmanns, 1992; Blanchard, Horan, & Brown, 2001; Bungener, Jouvent, Delaport, 1998). In trying to understand these findings, it has been proposed that while anhedonia is elevated in both schizophrenia and depression the reasons for these elevations differ across the disorders (Bernstein & Riedel, 1988). Specifically, anhedonia may reflect an enduring individual difference trait in schizophrenia while in depression anhedonia is a transient feature of the illness that is secondary to depressed mood. Consistent with this model, Blanchard, Horan, and Brown (2001) found that anhedonia in depressed patients decreased with the remission of

symptoms, whereas levels of social anhedonia in patients with schizophrenia remained elevated despite improvement in symptoms. This supports Meehl (1962, 1989) conjecture of anhedonia as a stable trait in schizophrenia and differentiates state anhedonia in depression from stable trait anhedonia in schizophrenia. These findings suggest that anhedonia is a stable vulnerability indicator in schizophrenia while in depression it reflects an episode or symptom indicator (Nuechterlein et al., 1990; Nuechterlein & Dawson, 1984).

Also in accordance with Meehl's theory of a genetic liability, research has found elevated levels of social anhedonia in relatives of patients with schizophrenia-spectrum disorders. Specifically, Katsanis, Iacono and Beiser (1990) found higher levels of social anhedonia in relatives of patients experiencing their first psychotic episode as compared with controls. Similarly, Kendler, Thacker and Walsh (1996) documented elevated levels of social anhedonia in the biological relatives of schizophrenic patients. Laurent, Biloa-Tang, Bougerd and Duley (2000) also noted statistically significant differences in the rates of social anhedonia reported by parents and siblings of schizophrenic patients when compared to controls. They found patients to have the highest levels of social anhedonia followed by their relatives and then controls.

In summary, elevated levels of social anhedonia have been found to be an enduring trait in clinical samples. Increased anhedonia has also been found in relatives of patients with schizophrenia, supporting the genetic liability of social anhedonia. Although, higher levels of social anhedonia in clinical samples are informative as to the nature of clinical characteristics in patients with schizophrenia

and schizophrenia-spectrum disorders, it does not illustrate the use of social anhedonia as a high risk indicator. Cross-sectional studies have investigated the utility of social anhedonia as an indicator of schizophrenia liability by examining similarities between non-clinical samples with elevated levels of social anhedonia and individuals with schizophrenia.

Social Anhedonia as a Cross Sectional High Risk Indicator

Studies using non-clinical samples have found individuals with elevated levels of social anhedonia to exhibit cognitive deficits and psychophysiological abnormalities consistent with those seen in schizophrenia (albeit in an attenuated form). Cognitive deficits associated with social anhedonia have been found in working memory (Tallent & Gooding, 1999; Gooding & Tallent, 2003), sustained attention (Kwapil & Diaz, 2000), and executive functioning (Gooding, Kwapil & Tallent, 1999; Tallent & Gooding, 1999). Social anhedonics are also more likely to display aberrant smooth pursuit tracking (Gooding, Miller & Kwapil, 2000) and deviant antisaccade performance (Gooding, 1999) in eye tracking tasks.

Social anhedonics have also have been found to have elevated dimensional ratings of schizophrenia-spectrum personality disorders. Mishlove and Chapman (1985) found that women who scored higher on the Revised Social Anhedonia Scale had more schizotypal features and psychotic like experiences. The relationship between social anhedonia and schizotypal features in men was more complex, such that men with higher social anhedonia scores did not differ from controls but showed elevations in schizotypal features when they exhibited elevated levels of social

anhedonia in combination with elevated scores on other measures of psychosis proneness (i.e., Perceptual Aberration, Magical Ideation). More recent studies have found social anhedonics to exceed controls on the proportion of individuals with each of the schizophrenia-spectrum personality disorders (Kwapil & Crump, 2002), and to endorse a great number of psychotic like experiences than controls (Gooding, Miller, & Kwapil, 2000). Merrit, Balogh, and DeVinney (1993) utilized the Minnesota Multiphasic Personality Inventory as a measure of schizophrenia-spectrum disorders and found 55% of individuals high in social anhedonia to have profiles associated with schizophrenia-spectrum disorders.

The cross sectional studies reviewed above suggest that putative schizotypes have elevations in clinically-relevant schizotypal characteristics. Social anhedonics also have also been shown to have cognitive deficits, and aberrant psychophysiological responses. Although these findings are consistent with Meehl's theory of schizotypy, it provides little support for social anhedonia as a valid indicator of vulnerability to schizophrenia-spectrum disorders. Longitudinal research has sought to examine the predictive validity of social anhedonia.

Social Anhedonia as a Longitudinal High Risk Indicator

In longitudinal studies social anhedonia has been revealed to be a robust indicator of the later development of schizophrenia-spectrum disorders. A ten year longitudinal study conducted by Chapman et al. (1994) used both the Revised Social Anhedonia Scale and a second measure of psychosis proneness (the Magical Ideation Scale) to predict individuals at high risk for schizophrenia-spectrum disorders.

Individuals with high scores on both the Magical Ideation and Social Anhedonia Scale were at the highest risk for the development of psychotic disorders during the ten year follow-up assessment (Chapman et. al., 1994). Kwapil (1998) re-analyzed the same data to examine the predictive utility of social anhedonia specifically. After controlling for the effects of the other measures used, 24% of the social anhedonic group were diagnosed with schizophrenia-spectrum disorders at follow-up. A more recent study investigating the predictive ability of social anhedonia (Gooding, Tallent & Matts, 2005) found, at five year follow-up, that 15.6% of the participants identified as socially anhedonic were diagnosed with a schizophrenia-spectrum disorder, while none of those in the control group were so identified. Such strong preliminary support seems to indicate that social anhedonia is a valid indicator of vulnerability to schizophrenia-spectrum disorders.

In sum, much of the research involving social anhedonia has focused on the clinical correlates and predictive validity of the construct. This research is clinically useful primarily because it may allow low cost mass testing, thereby allowing for a relatively simple way of identifying those at high risk for developing this debilitating and costly disease. Furthermore, the ability to identify high risk individuals may ultimately lead to the development of better prevention and treatment strategies. Although the evidence for this putative indicator is promising, a comprehensive picture of the social functioning of social anhedonics remains elusive. What makes them different as they interact with others? Are these differences evident to their peers? Simply put, little attention has been paid to the *social* aspect of *social* anhedonia.

Social Anhedonia and Interpersonal Relationships

Past research on social anhedonics has focused on gross indicators of general social functioning. These indicators suggest that social anhedonics demonstrate shortcomings in general indexes of social success. When compared to controls social anhedonics have fewer friends (Mishlove & Chapman, 1985) and fewer interpersonal relationships (Kwapil, 1998). The interpersonal relationships held by social anhedonics are also reported to be less satisfying than those of controls (Kwapil, 1998). Studies have also shown social anhedonics to have poorer overall social adjustment (Mishlove & Chapman, 1985; Kwapil, 1998). Finally, marriage rates are statistically lower for social anhedonics than controls (Kwapil, 1998).

Although these findings illustrate general social deficits, they do not investigate daily social functioning or specific social deficits of social anhedonics. Understanding the social functioning of social anhedonics would provide further insight into the construct of social anhedonia and its relationship with schizotypy. This would allow for the development of theories about social anhedonia and the systems that create, support, or exacerbate the deficits exhibited by social anhedonics.

Emotional Expressivity, Schizophrenia and Social Anhedonia

Blanchard, Cohen and Carreno (2005) hypothesized that the social impairments observed in anhedonics may be related to deficits in the outward expression of emotion. Blanchard's hypothesis focuses on one component of emotion (outward expression) for two main reasons that shall be reviewed in detail below.

First, diminished emotional expression has been found in schizophrenia and social anhedonia. Studies have shown that individuals with schizophrenia describe experiencing strong emotions to emotionally-eliciting stimuli, yet they are severely lacking in the outward expression of emotion (Berenbaum & Oltmanns, 1992; Kring, Kerr, Smith, & Neale, 1993; Kring, & Neale 1996). This disparity is contrary to notions that suggest emotions to be a fusion of experienced emotion, expressive behavior, and physiological response. Recently, studies have shown that the three portions of emotions are not equally intercorrelated. Specifically, reports of feelings or emotional experience seem to be independent from emotional expression and physiological reaction (Lang, 1994). Simply stated, emotional deficits in schizophrenia and schizophrenia-spectrum disorders seem to lay primarily in the expression rather than the experience of emotion.

This disjunction in emotional experience and expression also contrasts with Rado's (1953) original belief that the lack of emotional expressivity in schizophrenia was due to an inability to experience positive emotions. Further contradicting Rado's theory, Berenbaum & Oltmanns (1992) presented schizophrenics who exhibited blunted affect with an emotional stimulus that required low cognitive demands (i.e. a flavored drink) and compared their reactions with those of non-blunted affect schizophrenics. The reported emotional experiences did not differ between the groups. The actual differences laid in their outward expression of emotion. It is now believed that schizophrenics are lacking in emotional expressivity rather than emotional experience.

Several studies have examined whether social anhedonics exhibited patterns of emotional expressivity similar to those of schizophrenics. Kring, Smith, and Neale (1994) found social anhedonia to be negatively correlated with self-reported emotional expressiveness in a non-clinical college sample. These findings were later replicated by Adams (2003) who also found self-reported emotional expressivity to be negatively correlated with social anhedonia. Collins, Blanchard and Biondo (2005) utilized behavioral coding of social interactions to show that individuals who were high in social anhedonia also exhibited less facial affect. Thus it appears that greater social anhedonia is associated with diminished self-reported emotional expressivity as well as diminished outward expressions of emotion.

In summation, one of the most robust findings to emerge from studies on emotion in schizophrenia is that compared to non-patients, schizophrenic patients display fewer observable expressions of emotion (Kring & Earnest, 1999). This diminished expression has also been observed in non-clinical subjects with high levels of social anhedonia (e.g. Collins, Blanchard, & Biondo, 2005).

Emotional Expressivity and Interpersonal Relationships

The second reason the hypothesis proposed by Blanchard (2005) focuses on outward expressions of emotion, is the central role of emotional expression in social interactions. Several studies have investigated the relationship between emotional expressivity and interpersonal interactions.

The influence of blunted affect on interpersonal relationships has been investigated by several researchers. Gross and John (2003) found individuals who

reported that they regularly suppressed emotion (measured through both peer- and self- reports of levels of emotional suppression) evoked neutral feelings from their peers, and reported less social support on several social support measures. Butler and colleagues (2003) found emotion suppression to have a more adverse affect on social relations. When individuals were asked to suppress their emotional expressions in conversation dyads they were less liked by the other partner. Partners were also less willing to form friendships with emotion-suppressors as compared with controls (Butler et al., 2003).

Other studies have differentiated between positive emotional expression (i.e., expressing happiness) and negative emotional expression (i.e., expressing fear or nervousness). Gross and John (1997) found positive emotional expression to be positively related to peer likeability in college students. They also found that individuals with higher levels of negative emotional expressivity tended to be less liked by their peers.

In conclusion, in non-clinical samples blunted affect and expressions of negative emotions has been found to have a negative impact on interpersonal relationships. These findings are of interest since the studies reviewed above suggest that schizophrenics and social anhedonics exhibit a dearth of outward displays of emotional expressivity. It is proposed that some of the social deficits exhibited by social anhedonics may be related to their diminished emotional expressivity. To date no study has simultaneously examined emotional expressivity and peer relations within social anhedonics.

Purpose of the Current Study

The foregoing review has documented the relevance of social anhedonia as a predictor of schizophrenia-spectrum vulnerability as well as the significant deficits in outward expressions of emotion in clinical and non-clinical samples. However, there is a dearth of research investigating the nature of social relationships experienced by social anhedonics. The primary purpose of the current study is to provide support for and further elaborate on the hypothesis proposed by Blanchard, Cohen and Carreno (2005), for an association between diminished emotional expressivity and the impaired interpersonal relationships of social anhedonics.

The current study will seek to replicate past findings indicating that social anhedonics are less emotionally expressive than controls, and further elaborate upon the social implications of the diminished emotional expressivity in social anhedonics. It will do so by examining how others in the social environment perceive and react to social anhedonics.

The study will include peer reports of emotional expressivity in addition to self reported measures of emotional expression. The use of multiple measures will allow for a richer and more accurate description of the interpersonal interactions of social anhedonics. Convergent information from more than one source may also provide unique information about social anhedonics ability to accurately report their social experiences, as well as understand how they are viewed by their peers despite their social deficits.

Lastly, this study seeks to investigate the experience of peer rejection by social anhedonics. Given the importance of emotional expressivity in the

establishment of social relationships, it is hypothesized that the diminished emotional expressivity exhibited by social anhedonics will negatively affect their interpersonal relationships. This is related to the conjecture that social anhedonics may evoke negative reactions from peers, thereby perpetuating a non-rewarding social environment. Simply stated, because anhedonics are less expressive, their diminished expressivity may evoke non-rewarding or negative reactions from peers. The anhedonic may react to the negative feeling of peers by expressing less positive emotion toward the peer and the cycle is continued.

Summary

Social anhedonia, the diminished capacity to derive pleasure from social experiences, has become a topic of interest in the schizophrenia literature as several studies have supported its usefulness as a predictor of schizophrenia and schizophrenia-spectrum disorders. Some research indicates that social anhedonics differ from controls in their outward expression of emotion. In non-clinical samples, suppression of outward displays of emotion, and negative emotional expressivity has been shown to negatively affect interpersonal relationships. The proposed study will test the hypothesis that diminished positive emotion in anhedonics has a negative impact on the relationship between social anhedonics and their peers. This may produce a vicious cycle, in which unrewarding or punishing social interactions might lead to even fewer interpersonal connections, and further social dysfunction in anhedonics.

Chapter 2. Methodology

Overview

In this study we examined the emotional expressivity and peer relationships within anhedonics and a group of comparison controls. Participants were screened from a large pool of undergraduates residing on campus. Based on this screening two groups were selected for additional study: social anhedonics as determined by extreme scores on the Revised Social Anhedonia Scale (RSAS: Eckblad, Chapman, Chapman, & Mislove, 1982) and normal hedonic controls. These two groups participated in a separate ongoing study of emotional expressivity within a laboratory assessment. During this early phase, all participants completed measures of self-reported emotional expressivity. As part of the current study, anhedonics and controls were invited to become involved in this study of peer relations. Questionnaires assessing roommates' perceptions of participants' emotional expressivity and peer-ratings of their relationship were obtained. These peer ratings permitted us to determine how anhedonics are perceived with regard to emotional expression as well as their relations with peers. We were also able to examine to what extent diminished expression within anhedonics is associated with peer rejection.

Participants

Twenty-five hundred incoming college female freshmen were randomly selected by the Department of Resident Life at the University of Maryland, College

Park (UMCP). Their names and school addresses were then placed on mailing labels by the Department of Residential Life. The selected students were then mailed a letter of invitation to participate in the first portion of the study (see Appendix A). They were informed that the study concerns personality and social relationships. If interested, the students were directed to an internet based questionnaire. Each student had an individual identification number as well as a unique password to access the internet based questionnaire. Once the student logged onto the internet based questionnaire, they were asked to read a consent form and indicate agreement before accessing the actual questionnaire (see Appendix B). The questionnaire contained several demographic questions (see Appendix C) the Revised Social Anhedonia Scale (RSAS; Eckblad, Chapman, Chapman & Mishlove, 1982; see Appendix D), an infrequency scale (IS: Chapman, Chapman & Raulin, 1976) in order to remove invalid respondents (see Appendix E), and the Berkley Expressivity Questionnaire (BEQ; Gross & John, 1995; see Appendix F)

For the second portion of the study the participants were selected on the basis of their RSAS scores. Prior to selecting participants for the second portion of the study, all the participants whose responses were deemed invalid, (more than 2 unexpected responses on the IS) were removed. Prior studies (Chapman, Chapman, Kwapil, Eckblad & Ziner, 1994; Kwapil, 1998) have used similar selection methods which resulted in the exclusion of approximately 1% of the sample. This reduction in sample size was not expected to compromise overall sample size or bias the sample.

The RSAS scores were then z-scored separately by race due to concerns about possible race differences in RSAS scoring. For each group socially anhedonics

subjects were chosen on the basis of RSAS scores of 1.96 standard deviations above the mean. The criteria for the control group were participants with RSAS scores no more than .5 standard deviations above the mean.

Participants were recruited as part of an ongoing larger study at the University of Maryland. In order to compare social anhedonics to controls for the larger study, with adequate power (power = .80) to detect medium ESs ($d = .50$), and $\alpha = .05$, the necessary sample size was found to be 31.36 cases per group for a total N of 64. The actual sample sizes obtained for this study were 21 anhedonics and 42 controls for a total of 63 participants.

Materials

Assessment of Social Anhedonia

The Revised Social Anhedonia Scale (RSAS: Eckblad et al, 1982 see Appendix D) was administered to the participants during the initial internet based screening. The Revised Social Anhedonia Scale is a 40 item true/false inventory that assesses social anhedonia. The RSAS includes items such as, “If given the choice, I would much rather be with others than be alone.” Mishlove and Chapman (1985) found validation for the RSAS through interview based reports of current social withdrawal, isolation, and less enjoyment from and need for social contact. Feelings of loneliness however were not reported at a statistically significant level. The Revised Social Anhedonia Scale has also been shown to have internal consistency with coefficient alphas ranging between 0.79 and 0.84 (Blanchard, Mueser & Bellack, 1998; Mishlove and Chapman, 1985). Test-retest reliability has been shown over a 90-day period with a stability coefficient of 0.79 (Blanchard et al., 1998), as well as

over a one year period with a stability coefficient of 0.72 (Blanchard et al., 2001). Taxometric procedures have also been used to show a low base rate taxon of 10% exists for the RSAS (Blanchard, Gangestad, Brown & Horan, 2000; Horan, Blanchard, Gangestad & Kwapil, 2004). These findings lend support for Meehl's (1962, 1982) supposition of a latent class of individuals predisposed to developing schizophrenia. Blanchard and colleagues (1998) and Chapman et al. (1976) added additional validity for the RSAS by finding elevated levels of social anhedonia in schizophrenics. Other studies have shown similar elevated levels in the families of schizophrenics (Katsanis et al., 1990). Finally, both cross-sectional (Brown, Blanchard, & Horan, 1998) and longitudinal studies (Kwapil, 1998) have found positive relationships between elevated levels of social anhedonia and schizophrenia-spectrum disorders.

Use of the Infrequency Scale

The Infrequency Scale (Chapman et al., 1976 see Appendix E) was designed as an invalidity index for the Revised Social Anhedonia Scale. Items were intermixed with the Revised Social Anhedonia Scale and, were used to remove participants from inclusion into the second portion of the study. Previous studies have removed participants with 3 or more unexpected answers (Chapman et al., 1994; Kwapil, 1998); therefore, this study proceeded in the same fashion. The Infrequency Scale is a 17-item scale which includes items which are typically answered in the same fashion universally. For example "I have never combed my hair before going out in the morning."

Self- Reported Emotional Expressivity

The Berkley Expressivity Questionnaire (BEQ; Gross & John, 1995 see Appendix F) was used to assess participants' emotional expressivity. The BEQ is a 16 item questionnaire on a 7-point Likert scale, which includes three subscales (negative expressivity, positive expressivity and impulse strength). Examples of BEQ items are, "I have strong emotions," and "I am an emotionally expressive person." The BEQ has been shown to have substantial test-retest reliability ($r = 0.86$) (Gross & John, 1995). Convergent validity was established by high correlations with other expressivity scales. The BEQ is the most strongly correlated with the Emotional Expressivity Scale (Kring, Smith & Neale, 1994; $r = .88$) (Gross & John, 1997).

The BEQ consists of three sub-scales formulated after questions in the measure loaded onto three factors, Positive Expressivity, Negative Expressivity, and Impulse Strength. The factors had coefficient alpha reliabilities ranging from 0.71 to 0.76 in the derivation sample. Facets for general expressivity are all positively correlated. Impulse strength correlated 0.52 with Negative Expressivity and 0.50 with Positive Expressivity, and Negative Expressivity is correlated 0.51 with positive expressivity (Gross & John, 1995).

Peer-Rated Emotional Expressivity

The Berkley Expressivity Questionnaire (BEQ; Gross & John, 1995 see Appendix L) was modified in order to asses peer-ratings of each participants

emotional expressivity. Again the modified BEQ is a 16 item questionnaire on a 7-point Likert scale. Examples of the modified BEQ items are, “My roommate has strong emotions,” and “My roommate is an emotionally expressive person.” The peer rated version of the BEQ has been utilized in previous studies by the developers of the scale (Gross & John, 1997). They have found self-reports and peer-ratings of total BEQ to be correlated ($r = .58$). The convergent validity correlations for the three subscales were also substantial, ranging from .41 to .48.

Peer Relationships

In order to evaluate how peers felt about their roommates we included a measure of how willing they were to interact with their roommate as well as a measure of the pleasure they derived from social interactions with their roommate.

Willingness of Peers to Associate

The Willingness to Interact Scale (WILL; Coyne, 1976) was modified (WILL-M) to measure peers willingness to interact with their roommates. The developer of The Willingness to Interact Scale originally used the scale to assess a stranger's willingness to interact with a subject after an initial meeting (i.e. would a research assistant want to interact further with an interviewee). The use of the WILL has been limited, therefore data about the reliability and validity of the scale is lacking.

In previous studies the WILL has been used with depressed patients and has shown differences in peers willingness to interact with the patients (Coyne, 1976).

These studies however, have focused on novel relationships rather than formerly established relationships. The proposed study is interested in the willingness of roommates to interact with each other therefore, items relating to initial meeting (i.e. How willing are you to meet this person again?) needed to be removed. Items were added that were congruent with our interest (i.e. How willing are you to invite your roommate to a movie?). Because the reliability and validity data of the WILL is limited, this study sought to establish preliminary reliability and validity ratings for the WILL-M.

Like the WILL, the WILL-M is a six item five point Likert scale, anchored at 0. Items in the WILL-M include, “How willing would you be to sit with your roommate on a 3-hour bus trip?” (see Appendix M). Although the WILL is not an original scale, it has been substantially modified for use in the current study, therefore, the reliability and validity of the WILL-M has not been established.

Peer-rated Social Pleasure

In order to establish the level of peer pleasure derived from interacting with each participant, a second original scale was created. The Maryland Social Pleasure Scale (MSPS) is a 6 item 5 point Likert scale, which includes items such as “How much do you enjoy talking to your roommate?” (see Appendix N). The scale is original therefore, the reliability and validity of the MSPS measure has not been established.

Social Adjustment

In order to measure the social adjustment of both the participants and their roommates the Social Adjustment Scale-Self Report (SAS-SR) (Weissman & Bothwell, 1976) (see Appendix H) was used. The SAS-SP consists of 51 items in the form of a 5 point Likert scale. It covers six areas of functioning: (a) role as worker, (b) social and leisure time, (c) relationships with extended family, (d) marital relationships, (e) role as a parent, and (f) role in a family unit. Scores are computed by adding items within a "role area," deriving a mean, and computing a mean total score. The areas of marital relationships and role as a parent were eliminated due to the age of the sample. Multiple studies using the SAS-SR have demonstrated rater reliability coefficients typically around .60 to .75 and concurrent validity correlation coefficients with the Symptom Checklist (Derogatis, Rickels, & Rock, 1976) ranging between .59 and .84.

Procedures

Once the participants were selected (see *participants* section), they were called into the laboratory to complete a task unrelated to this study. Upon completion of the first study, the participants were asked if they would like to take part in a second study. In order to qualify for the second (current) study the participant had to be living with at least one roommate. If they did live with a roommate and agreed to participate they were compensated \$10.

Participants also completed the SAS-SR (see Appendix H) after consent was obtained (see Appendix G). They were asked to list all of their roommates. All

roommates were contacted by the researcher via telephone. The roommates were asked to come into the laboratory and complete the peer-rated versions of the BEQ (see Appendix L), the WILL-M (see Appendix M), and the MSPS (see Appendix N), after completing a consent form (see Appendix K). The roommates were compensated \$20 for their participation in the study.

If the roommates could not come into the laboratory but were interested in participating in the study they were mailed a package containing a letter of invitation (see Appendix I), as well as a consent form (see Appendix K). The envelope also included the peer-rated versions of the BEQ (see Appendix L), the WILL-M (see Appendix M), and the MSPS (see Appendix N). The questionnaires were returned in a third envelope addressed to J. T. Carreno at the University of Maryland. Payment was made to roommate participants via campus mail after she completed and returned the questionnaire.

Chapter 3. Results

Overview

The purpose of this study was to examine the relationship between social anhedonia, emotional expressivity and social functioning. This study utilized both self- and peer- ratings of emotional expressivity and social functioning. First, group differences in demographics were examined. Second, the internal consistency of self- and peer-reported measures were assessed. Third, the relationship between measures of expressivity and social functioning was assessed using correlational analyses and group differences were investigated with the use of Multiple Analysis of Variance (MANOVA). Finally, exploratory analyses were conducted to measure the relationship between indicators of social functioning.

Target Sample Demographics

The study groups were composed of 21 socially anhedonic individuals and 42 controls. The demographic characteristics of the sample are presented in Table 1. The groups did not differ in age, $t(62) = 1.22, p > .05$; or level of education, $t(62) = 2.02, p > .05$ (see Table 1). With respect to race the anhedonic group was predominantly white with 78.6% of the sample classifying themselves as white, 11.9% of the sample classifying themselves as Asian, 7.1% Black, and 2.4% American Indian. The control group was comprised of 57.1% of participants classifying themselves as White, 11.9% Asian, 4.8% Black, 4.8% Multiracial, 2.4%

Hispanic, and 2.4% “other.” The racial composition of the two groups did not differ, $X^2 (3, N=64) = .84, p > .05$.

Roommate Sample Demographics

The roommate sample consisted of 19 roommates of socially anhedonic individuals and 35 roommates of controls. The groups did not differ in the proportion of roommates who participated in the study, Social Anhedonics; 80%, Controls; 83%, $X^2 (2, N=64) = .10, p > .05$. No group differences were found in roommate age, $t(52) = .613, p > .05$, or level of education, $t(52) = .284, p > .05$ (see Table 1). With respect to race, the roommates of the anhedonic sample were again predominantly white (72.7%), followed by Asian (18.2%), Black (4.5%), and American Indian (4.5%). Half (50%) of the roommates of the control group classified themselves as White, 13.6% classified themselves as Black, 9.1% Asian, 9.1 Multiracial, and 4.5% classified themselves as Hispanic. The roommate groups did not differ significantly in their racial composition, $X^2 (5, N=54) = 2.82, p > .05$.

Scale Reliability

The internal consistency of self-report measures was examined utilizing Cronbach’s Alpha. Within the total sample alpha’s were high for the Revised Social Anhedonia Scale ($\alpha = .71$), the Maryland Social Pleasure Scale ($\alpha = .74$) and the Willingness to Associate Scale ($\alpha = .95$). Alpha’s were also high for the self-rated Positive and Impulse subscales of the Berkeley Expressivity Questionnaire ($\alpha = .75, .79$, respectively). The alpha for the self-rated Negative subscale from the Berkeley Expressivity Questionnaire had a slightly lower alpha of .53. For the peer-rated

Berkeley Expressivity Questionnaire Positive subscale and the Impulse subscale alpha's were again higher ($\alpha = .65, .75$, respectively) than the peer-rated negative subscale ($\alpha = .31$). Alpha's for the Social Adjustment subscales also varied: For the Social and Leisure subscale $\alpha = .68$, for the Familial Adjustment subscale $\alpha = .47$, and for the School/Academic Adjustment subscale $\alpha = .60$.

Group Differences

Self-Rated BEQ

A MANOVA was conducted on the three subscales of the Berkeley Expressivity Questionnaire and a main effect for group was found for the self-rated emotional expressivity measures, $f(3,59) = 27.39, p < .01$ (see Table 2). Social anhedonics reported lower scores on the positive subscale ($F(1,59) = 71.54, p < .01$), the negative subscale ($F(1,59) = 10.16, p < .01$), and the impulse subscale ($F(1,59) = 5.34, p < .05$). These results indicate that, based on their self-report, social anhedonics are less expressive of both positive and negative emotions when compared to controls. They also report expressing their emotions with less intensity.

Self-Rated Social Functioning

A MANOVA was used to examine group differences in self-rated social functioning. A statistically significant main effect for group was found for the self-rated social adjustment scales ($f(3,60) = 3.97, p < .05$). A significant univariate result was found for the Social and Leisure subscale ($f(1,60) = .19, p > .05$). However, social anhedonics did not differ from controls in their ratings of academic

or familial adjustment ($f(1,60) = 1.32, p > .05$; see Table 3). These results indicate that anhedonics report more impairment in the domains of social adjustment (on the Social Adjustment Scale higher scores indicate more impairment).

Peer-Rated Variables

Group differences in peer-rated emotional expressivity were examined utilizing a MANOVA. The groups did not differ in peer-ratings on the Berkeley Expressivity Questionnaire ($f(3,50) = 1.67, p > .05$; see Table 2).

In order to examine group differences in peer-ratings of willingness to associate and pleasure derived from the social interaction two t-tests were used. The tests revealed no significant group differences in peer's willingness to associate with their roommates, $t(52) = -.78, p > .05, d = .54$; or in peers level of pleasure derived from interacting with them $t(52) = -.37, p > .05, d = .55$.

Relationship Between Measures

Self-Rated BEQ

Correlational analyses were conducted to examine the relationship between self-rated emotional expressivity and several indicators of social success within the groups (anhedonic and control). It was hypothesized that self-rated emotional expressivity (positive, negative and impulse) would be related to the three facets of social adjustment (social and leisure, academic/school adjustment, and familial adjustment). Only one hypothesis was supported. In the anhedonic group the impulse subscale was positively correlated with the familial adjustment subscale ($r =$

.58, $p < .01$; see Table 4). The positive expressivity subscale also had a large but non-significant negative relationship with the social and leisure subscale ($r = -.40$, $p > .05$). This finding indicates that anhedonics who report a higher level of general strength of emotional responding also have higher levels of impairment in familial adjustment. In the control group no statistically significant relationships were found between emotional expressivity and the three subscales of social adjustment.

It was further hypothesized that self-rated emotional expressivity, would be correlated with peers willingness to interact with the target (Willingness to Associate Scale), and the level of pleasure peers experience as a result of interacting with the target (Maryland Social Pleasure Scale). When looking at the sample again stratified by group (anhedonic and control), correlational analysis failed to support any statistically significant relationships among the positive, negative or impulse subscales of the self-rated Berkeley Expressivity Questionnaire, the Willingness to Associate Scale, or the Maryland Social Pleasure Scale (see Table 5).

Peer-Rated BEQ

The analysis then proceeded to examine the relationship between peer-rated expressivity and the five social success indicators (Social and Leisure, Family adjustment, Academic adjustment, the Willingness to Associate Scale, and the Maryland Social Pleasure Scale). When the sample was stratified by group, a negative relationship was found in the control group for negative expressivity and a peers willingness to associate with them ($r = -.36$, $p < .05$) and positive expressivity was positively related to peer pleasure ($r = .41$, $p < .05$; see Table 6 & 7).

Agreement in Self- and Peer-Rated BEQ scores

Further correlational analysis was conducted to establish convergence between self-rated expressivity and peer-rated expressivity (see Table 8). As hypothesized, in the anhedonic sample the self- and peer- rated positive subscales were directly correlated ($r = .54, p < .05$). The self- and peer- rated negative and impulse subscales were not statistically significantly correlated ($r = -.11, p > .05$; $r = .38, p > .05$, respectively). No statistically significant relationships were found between peer- and self- ratings of emotional expressivity in the control group ($r = .26, p > .05$; $r = .17, p > .05$, $r = .22, p > .05$; see Table 8). In the current sample, anhedonic individuals and their roommates generally agree on the overall level of the individuals' positive expressivity, but not in levels of negative expressivity. Individuals and their roommates also did not agree on the intensity of the individual's expression irrespective of valence (Impulse subscale). In the control group no relationships were found between self- and peer- ratings of emotional expressivity.

Proposed Mediation Analysis

It was hypothesized that emotional expressivity would mediate the relationship between levels of social anhedonia and a peers willingness to associate with them, as well as the pleasure experienced as a result of interacting with the target. In order for mediation analysis to be conducted a relationship between the aforementioned variables needs to be established (Baron & Kenny, 1986). Since neither the Willingness to Associate Scale or the Maryland Social Pleasure Scale

were related to group status (socially anhedonic vs. control) or to social anhedonia when used as a continuous variable ($r = .13, p > .05$; $r = -.11, p > .05$), mediational analysis was not conducted.

Exploratory Analysis of BEQ and Social Variables

Exploratory correlational analysis utilizing the total sample was conducted to investigate the relationship between the social adjustment subscales, the Willingness to Associate Scale and the Maryland Social Pleasure Scale. In the anhedonic group the social and leisure subscale was negatively correlated with peers willingness to associate ($r = -.58, p < .01$). In both groups peers willingness to associate with their roommates was positively correlated with the level of pleasure derived from interacting with them ($r = .82, p < .01$; $r = .90, p < .01$; anhedonic and control group respectively). These findings indicate that the roommates of individuals who identified themselves as being less socially adjusted in the areas of socializing and leisure time were less willing to associate with them in a social context. These results also supported the notion that roommates are more willing to interact with individuals who they consider to provide them with more pleasure during social interactions.

Chapter 4. Discussion

The current study sought to examine the hypothesis that social anhedonics are less emotionally expressive than controls. It also aimed to determine if diminished expressivity was related to poorer social functioning in anhedonics. A unique feature of this study was the inclusion of peer reports of emotional expressivity and social relationships.

This study replicated previous research in finding that social anhedonics have decreased levels of emotional expressivity when compared to controls (Collins, Blanchard, Biondo, 2004). This relationship held across all self-reported expressivity scales (positive, negative and impulse strength), indicating that anhedonics were less expressive of both positive and negative emotion. These findings also indicate that when anhedonics do express emotions they display their emotions with less intensity than do controls (impulse strength subscale).

The result that anhedonics were less expressive of *both* positive and negative emotion supports the notion of blunted affect in anhedonics (Collins, Blanchard, Biondo, 2004). Blunted affect suggests that anhedonics may not have a deficit in only positive expression, or alternatively greater levels of negative expression, but rather an overall reduction in emotional expression irrespective of valence. Interestingly, these group differences were only seen in self report measures and not in peer reports.

Contrary to predictions, the peers of anhedonics did not report them to be less emotionally expressive than controls. This disparity between self- and peer-reports of expressivity has not been found in previous studies of non-clinical college samples. Utilizing the same two scales (Berkeley Expressivity Questionnaire, self- and peer-

rated) Gross and John (1995) found peer- and self- agreement on the emotional expressivity subscales to be much higher (with correlation coefficients ranging from .41-.48) than in the current study (with coefficients in the anhedonia groups ranging from .17 - .26, control group ranging from -.11- .54). There are several factors that may have contributed to this lack of replication. In the Gross and John (1995) study using the peer-rated Berkeley Expressivity Questionnaire, 44 participants were surveyed along with 2 or 3 of their peers. A composite measure of peer-rated emotional expressivity was created by averaging across peer raters. The current study only had the ratings of one peer and did not have the added benefit of multiple informants. The use of multiple peer ratings may have yielded more reliable and valid estimates of emotional expressivity as compared to a single peer utilized in the current study. Multiple raters may have the opportunity to see participants in a variety of contexts as well as observe a greater number and range of emotional expressions. The Gross and John study had a larger sample size of 44 participants compared to the current study whose control group was comprised of 35 participants and whose social anhedonia group was substantially smaller at 19 (including only participants whose roommates completed questionnaires). These small sample sizes may account for the failure to detect correlational relationships between self- and peer- reports of impulse strength despite medium effect sizes of ranging from .21 to .38. Sample size may affect the relationship between self- and peer- rated negative expressivity to a lesser extent since effect sizes comparing peer and self reports of negative expressivity can be classified as low (-.11 - .20).

Although self-reports of negative expressivity and strength of responding (impulse) were not correlated with peer reports, self-reported positive emotional expressivity in anhedonics was correlated with peer reports of positive emotional expressivity ($r = .58, p < .05$). This may be because positive emotions tend to be experienced with a greater intensity than negative emotions (Gross & John, 1995). Furthermore, in females, expressions of positive emotions may be more socially acceptable than expressions of negative emotions (i.e. laughing on a regular basis may be more acceptable than crying on a regular basis; Young, 2002). Given that positive emotions may have a tendency to be expressed with greater strength and frequency than negative emotional responding, it may be easier for individuals to self identify and peers to observe positive emotions than negative emotions. However, this relationship was not found in the control group. Further research is needed in understanding why individuals high in social anhedonia have a greater level of agreement with their peers in reports of positive emotional expression than in negative emotional expression and general tendency of emotional responding.

This study also investigated the social functioning of anhedonics to determine if anhedonics differed from controls in self reports of adjustment. The current study differed from past studies in that it did not rely on gross indicators of social success (Kwapil, 1998, Mishlove & Chapman, 1985) and instead focused on three facets of adjustment (academic, familial, and social). Anhedonics did not differ in their academic functioning compared to controls. Anhedonics also did not differ from controls in their levels of familial discord or issues associated with familial maladjustment. However, anhedonics did report poorer functioning than controls in

the domain of social and leisure activities. These findings indicate that anhedonics' adjustment difficulties may be specific to social adjustment. Future studies should consider functioning as a multidimensional construct that may not be adequately captured by a broad measure of global functioning.

It was hypothesized that the anhedonics' lower levels of emotional expressivity and high levels of social impairment would contribute to lower levels of peer pleasure when interacting with social anhedonics. Furthermore, it was expected that the deficits in emotional expressivity and social adjustment would also decrease the willingness of peers to associate with social anhedonics. These hypotheses were not supported. The peers of social anhedonics and controls did not differ in reports of pleasure experienced as a result of interacting with roommates. Social anhedonics and controls also did not differ in peer reports of willingness to interact with roommates.

Contrary to the belief that peers would reject anhedonics as a result of their diminished emotional expression only two variables correlated with peers' willingness to interact with roommates. In both the anhedonic and the control group, the level of pleasure the peer received as a result of interacting with the roommate was positively correlated with peers' willingness to associate with them. This finding is rather intuitive in that people are more likely to want to engage in interactions with individuals they find to be more pleasurable. The second variable that was related to peers' willingness to associate was self-reported levels of social adjustment. In the anhedonic group higher levels of social dysfunction were related with less willingness of peers to associate with the anhedonic. With the current research design it is not possible to ascertain the directionality of this relationship. It is possible that

anhedonics who experience more social dysfunction are less likely to evoke a desire from peers to associate with them. It can also be the case that peers' lack of willingness to interact with anhedonics results in accurate reports of poorer social functioning (e.g. having fewer friends etc.). Further research is needed to establish the directionality of the above relationship as well as other factors that can contribute to the social functioning of social anhedonics.

Limitations and Future Directions

Gender

Prior research has shown several differences in the way males and females express emotion. Women display greater emotionally expressive behavior than men (e.g. Hall, 1987; Kring & Gordon, 1998; Gross, John, & Richards, 2000). Prior studies have also shown that females display greater positive emotions than males (Campbell, 1999). This study utilized an all female sample as a preliminary step in the study of expressivity and peer relations in social anhedonics. Thus caution is necessary when integrating these findings. Future studies will need to determine if the present findings extend to men.

Use of Single Informants

Although this study was unique in its use of peer ratings in a socially anhedonic sample, it was limited in the range of peer informants. All of the peers were the participant's roommates. The amount of time each roommate spends with the participant was also unknown and could have an affect on peer-rated measures

such that roommates that spend more time with the participants in the study may have a greater opportunity to see expressions of emotions simply by spending more time with them. This increased amount of time spent together could also affect the range and variety of exhibited expressed emotion and therefore could have affected all three facets of peer-reported emotional expressivity. Finally, if more than one peer was used to assess peer-rated measures the measures could have reflected a less biased view of the individual based on individual perceptions. The current study could have been further strengthened by including non-peers such as family ratings.

Measures of Schizotypy, not Symptoms

Social Anhedonia is one of the core behavioral traits of schizotypy. In this study we only used a single measure of social anhedonia and did not utilize any clinical measure of symptoms of schizophrenia-spectrum disorders. This study may have benefited from the use of symptom ratings in order to investigate their relationship with emotional expressivity as well as several social success indicators. Social anhedonics' clinical ratings would also serve to confirm the presence of schizophrenia-spectrum characteristics in this group of putative schizotypes.

Mailing Ratings vs Completing Ratings in the Laboratory

Some of the participants in the current study (both targets and roommates) completed the questionnaire via campus mail and did not come into the laboratory to complete the questionnaires. All individuals were asked to complete the questionnaire in one sitting and alone. Only a small percentage of the sample

completed their questionnaires by mail (20%). The difference in measurement administration may have affected the way in which questions were answered by possibly influencing how a peer rated expressions of positive or negative emotion. If the peer was in the laboratory they may have been more open to rating a peer as higher in negative expressions of emotions. If the peers were completing the questionnaire in their dorm rooms they may have been more apt to rate their roommates higher in positive expressivity.

Summary

Social anhedonia, the diminished capacity to derive pleasure from social experiences, has become a topic of interest in the schizophrenia literature as several studies have supported its usefulness as a predictor of schizophrenia and schizophrenia-spectrum disorders. Some research indicates that social anhedonics differ from controls in their outward expression of emotion. This study supported previous findings of diminished expressivity in social anhedonics. This study did not however find the diminution of emotional expressivity to negatively affect peer relationships as reported in several studies of non-clinical college samples.

Differences in social adjustment were related to peers willingness to associate with them. The amount of pleasure peers derived from interacting with anhedonics was also related to peers willingness to associate with them. Future research should seek to understand and develop a richer picture of the social functioning of social anhedonics in order to begin to understand the mechanisms which create, support and exacerbate social dysfunction.

Tables

Table 1.

Sample Demographics

<u>Sample</u>	<u>Target Sample</u>	<u>Roommate</u>
	M (SD), n	M (SD), n
Age (Years)		
Social Anhedonic	18.14(.56), 21	18.58 (.61), 19
Control	18.02 (.15), 42	18.58 (.74), 35
Education (Years)		
Social Anhedonic	13.09(.29), 21	13.21 (.42), 19
Control	13.00 (.00), 42	13.17 (.51), 35

Table 2.

Descriptive Statistics for Self-Rated Emotional Expressivity in Social Anhedonics and Controls.

	Self-rated <u>M</u> (<u>SD</u>)	Peer-rated <u>M</u> (<u>SD</u>)
Positive Subscale		
Anhedonics	17.62 (3.68)	20.84 (4.21)
Controls	21.84 (4.10)	22.07 (3.96)
Negative Subscale		
Anhedonics	17.10 (4.75)	17.74 (4.24)
Controls	19.41 (4.37)	19.02 (3.71)
Impulse Subscale		
Anhedonics	26.76 (7.56)	23.32 (6.82)
Controls	29.51 (6.90)	24.28 (6.54)

Table 3.

Descriptive Statistics for Social Adjustment Subscales in Social Anhedonics and Controls.

	Anhedonic <u>M</u> (<u>SD</u>)	Control <u>M</u> (<u>SD</u>)
Social and Leisure	2.45 (.52)	2.04 (.41)
Academic	1.85 (.58)	1.79 (.41)
Family	2.10 (.58)	1.96 (.36)

Note: Higher scores reflect poorer adjustment.

Table 4.

Correlations Between Self-Ratings of Emotional Expressivity and Social Adjustment in Social Anhedonics and Controls.

		Self-rated Emotional Expression		
		Positive	Negative	Impulse
<hr/>				
Social Adjustment Subscales				
Social and Leisure				
	Anhedonics	-.40	.03	-.17
	Controls	-.16	-.08	-.14
Academic				
	Anhedonics	.11	.11	.31
	Controls	.22	.11	.27
Family				
	Anhedonics	.28	.08	.58**
	Controls	.14	.12	.28

*p < .05, ** p < .01.

Table 5.

Correlations Between Self-Rated Emotional Expressivity and Peer-Rated Social Variables in Social Anhedonics and Controls.

	Self-Rated Emotional Expression		
	Positive	Negative	Impulse
Willingness to Associate Scale			
Anhedonics	.16	-.33	.01
Controls	.21	.02	-.08
Maryland Social Pleasure Scale			
Anhedonics	.28	-.43	.10
Controls	.21	-.01	-.24

* $p < .05$, ** $p < .01$.

Table 6.

Correlations Between Peer-Ratings of Emotional Expressivity and Self-Reported Social Adjustment Scales in Social Anhedonics and Controls.

		Peer-rated Emotional Expressivity		
		Positive	Negative	Impulse
<hr/>				
Social Adjustment Subscales				
Social and Leisure				
	Anhedonics	.00	.56*	.13
	Controls	-.06	.23	.15
Academic				
	Anhedonics	-.02	.09	.49*
	Controls	-.14	.04	.16
Family				
	Anhedonics	.44	.30	.29
	Controls	-.12	.15	.24

*p < .05, ** p < .01.

Table 7.

Correlations Between Peer-Ratings of Emotional Expressivity and Peer- Rated Social Variables in Social Anhedonics and Controls.

	Peer-rated Emotional Expressivity		
	Positive	Negative	Impulse
Willingness to Associate Scale			
Anhedonics	.20	-.38	-.05
Controls	.26	-.36*	-.17
Maryland Social Pleasure Scale			
Anhedonics	.41	-.14	-.08
Controls	.41*	-.30	-.09

* $p < .05$.

Table 8.

Correlations Between Self- and Peer- Ratings of Emotional Expressivity in Social Anhedonics and Controls.

		Self-Rated Emotional Expressivity		
		Positive	Negative	Impulse
<i>Peer-rated</i>				
Positive				
	Anhedonics	.54*		
	Controls	.26		
Negative				
	Anhedonics	.20	-.11	
	Controls	-.18	.17	
Impulse				
	Anhedonics	.37	.27	.38
	Controls	.21	.23	.22

* = $p < .05$

Table 9.

Correlations Between Social Success Indicators within Social Anhedonics and Controls.

	<i>Social Adjustment Subscales</i>			
	Social and Leisure	Academic	Family	Willingnes to Associate
<hr/>				
Willingness to Associate Associate Scale				
Anhedonics	-.58**	-.06	-.21	
Controls	.01	-.22	-.16	
 Maryland Social Pleasure Scale				
Anhedonics	.30	.05	-.03	.82**
Controls	-.13	.16	.18	.90**

*p < .05, ** p < .01.

Appendices

Appendix A.

Letter of Invitation

We are writing to ask that you assist us with part of our research project, entitled *Social Experiences and Personality Traits*, conducted by Dr. Jack Blanchard here at the University of Maryland at College Park. The purpose of our study is to learn about the relationship between feelings, mood, social behavior and personality traits in individuals.

We are recruiting students who are currently living on campus to be a part of this study, and the Department of Residential Life has identified you as a potential participant. ***You will be entered into a lottery prize drawing for \$50 (in a pool of 100 participants) for completing a secured internet questionnaire on social preferences and personality traits. If selected, you may have the opportunity to participate in an additional research project, which pays \$20.***

Below, you will find a URL link and a unique Subject Number that will allow you to access the questionnaire on a secured website that is maintained by the Office of Information and Technology (OIT) at the University of Maryland. Please note that this URL is *case sensitive*.

URL: **<http://cgi.umd.edu/survey/display?BlanchardLab/SA2004>**

You will also need your University Directory ID and password to access the questionnaire. Your Directory ID is usually your wam E-mail login or WebCT login. If you need help with your Directory ID, please feel free to contact us. These measures are taken to ensure the security of data. Before completing the questionnaire, please read the Informed Consent Form on the website, which provides some additional details about our project. ***After pressing NEXT on the Consent Form, the survey will ask you to enter your unique subject number. It is important that you correctly enter this subject number, as it is required for the lottery drawing.***

This questionnaire will take about 20-30 minutes and we ask that you complete the questionnaire in one sitting. We would like for you to ***complete the questionnaire within the next 7 days***. You will be automatically entered into the lottery drawing after you have completed the questionnaire and you do not need to take any additional steps.

Your answers to this survey are completely confidential. No personal information will be made available to anyone except the research staff and the OIT administrators who maintain the website. The results of the study will be reported only in an aggregate form, and your identity will be kept confidential. For the results of the study to be valid, it is extremely important that we hear from you.

If you have any questions regarding this study, do not hesitate to contact us at (301) 405-1531 or via e-mail at famstudy@psyc.umd.edu.

Thank you in advance for your help with this study!

Sincerely,

Jack J. Blanchard, Ph.D.

Associate Professor, Department of Psychology

Appendix B.

Consent Form

INFORMED CONSENT FORM

STAGE 1

Project Title: SOCIAL EXPERIENCES AND PERSONALITY TRAITS

I certify that I am 18 years of age or older, in good health, and wish to participate in a program of research being conducted by Jack Blanchard, Ph.D. in the Department of Psychology at the University of Maryland, College Park, MD 20742.

Purpose:

The purpose of this project is to examine the relationship between mood, social behavior, and personality traits in individuals.

Procedure:

The procedures I voluntarily agree to take part in are:

- I will be asked to provide demographic and contact information such as age, gender, ethnicity, education status, telephone number and email address.
- I will complete a questionnaire on a secured internet website that is maintained by the Office of Information and Technology at the University. This questionnaire will focus on social behavior and personality traits.
- The questionnaires should take about 20-30 minutes.
- I will be entered into a lottery drawing of \$50 in a pool of 100 people upon completion of the questionnaires.
- I may or may not be called to participate in an additional study.

Confidentiality:

All information collected during this project will be kept confidential. The Office of Information and Technology (OIT) at the University of Maryland maintains a secured website such that the data is accessible to the experimenter and the employees of OIT who maintain the website. The data are stored in a directory that is secured and is limited to the experimenter and a small number of OIT administrators. My name and personal information will be stored in separate files from my responses on the questionnaire. I will only be identified with a subject number. Presentations or publications of the study will be based on grouped data and will not reveal my identity. At the conclusion of this study, any information I provided on the secured website will be deleted from the internet directory.

Risks:

I may become bored while completing the project. In addition, I may also experience discomfort due to the sensitive nature of some of the questions. If discomfort should result, the following services are available:

UMD College Park Resources:

The Counseling
Center, 301-314-
7651
The Health Center,
301-314-8184
The Psychology
Clinic, 301-405-
4808

Local County Resources:

Crisis Response Service, PG County, 301-927-
4500
Montgomery County Crisis Center, 301-315-
4000
Emergency Psychiatric Risk Dept., 202-675-
7888

Whenever confidential information is collected there is some risk that this information may somehow be inappropriately disclosed. However, I understand that the researchers are taking clear and specific steps to guard the confidentiality of the information I provide (as outlined in the section on *Confidentiality*).

Benefits:

Although this project is not designed to help me personally, the researchers hope to gain valuable information about the relationship between personality traits and social behavior.

Participant Rights:

By signing this form, I agree that:

- I have freely volunteered to complete the questionnaire.
- I may contact the researchers by phone to ask questions before, during, and after completing the questionnaire.
- I may contact the researchers by phone at any time to obtain verbal or written information about the project.
- I may withdraw from the project at any time without penalty.

Contact Information:

If I have further questions or concerns about this study, I may contact the primary investigator:

Dr. Jack Blanchard, 301-405-8438

University of Maryland College Park

Biology/Psychology Building

College Park, MD 20742

If you have any questions about your rights as a research subject or wish to report a research-related injury, please contact:

Institutional Review Board Office

University of Maryland College Park

College Park, MD 20742

301-405-0678

Participant's Name (Please Print)

Signature

Date

Appendix C.

Demographic Questions

Self-report

1. Gender:

- a. Male
- b. Female

2. Age: _____

3. Ethnicity:

- a. European Origin / White
- b. African American / Black / African Origin
- c. Hispanic / Latino(a)
- d. Asian American / Asian Origin / Pacific Islander
- e. American Indian / Alaska Native / Aboriginal Canadian
- f. Bi-racial / Multi-racial
- g. Other

4. Current Education Status:

- a. Freshman
- b. Sophomore
- c. Junior
- d. Senior

5. How long have you lived with your roommate? _____ Months

6. Dorm Address:

7. Permanent Address:

8. E-mail Address 1: _____

9. E-mail Address 2: _____

10. Phone Number: _____

11. Cell Phone Number: _____

Appendix D.

The Revised Social Anhedonia Scale

Self-report

1. Having close friends is not as important as many people say.
2. I attach very little importance to having close friends.
3. I prefer watching television to going out with other people.
4. A car ride is much more enjoyable if someone is with me.
5. I like to make long distance phone calls to friends and relatives.
6. Playing with children is a real chore.
7. I have always enjoyed looking at photographs of friends.
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.
9. I sometimes become deeply attached to people I spend a lot of time with.
10. People sometimes think that I am shy when I really just want to be left alone.
11. When things are going really good for my close friends, it makes me feel good too.
12. When someone close to me is depressed, it brings me down also.
13. My emotional responses seem very different from those of other people.
14. When I am alone, I often resent people telephoning me or knocking at my door.
15. Just being with friends can make me feel really good.
16. When things are bothering me, I like to talk to other people about it.
17. I prefer hobbies and leisure activities that do not involve other people.
18. It's fun to sing with other people.
19. Knowing that I have friends who care about me gives me a sense of security.
20. When I move to a new city, I feel a strong need to make new friends.
21. People are usually better off if they stay aloof from emotional involvements with most others.
22. Although I know I should have affection for certain people, I don't really feel it.
23. People often expect me to spend more time talking with them than I would like.
24. I feel pleased and gratified as I learn more and more about the emotional life of my friends.
25. When others try to tell me about their problems and hang-ups, I usually listen with interest and attention.

26. I never had really close friends in high school.
27. I am usually content to just sit alone, thinking and day-dreaming.
28. I'm much too independent to really get involved with other people.
29. There are few things more tiring than to have a long, personal discussion with someone.
30. It made me sad to see all my high school friends go their separate ways when high school was over.
31. I have often found it hard to resist talking to a good friend, even when I have other things to do.
32. Making new friends isn't worth the energy it takes.
33. There are things that are more important to me than privacy.
34. People who try to get to know me better usually give up after awhile.
35. I could be happy living all alone in a cabin in the woods or mountain
36. If given the choice, I would much rather be with others than be alone.
37. I find that people too often assume that their daily activities and opinions will be interesting to me.
38. I don't really feel very close to my friends.
39. My relationships with other people never get very intense.
40. In many ways, I prefer the company of pets to the company of people.

Appendix E.

Infrequency Scale

Self-rated

1. One some mornings, I didn't get out of be immediately when I first woke up.
2. There have been a number of occasions when people I know have said hello to me.
3. There have been times when I have dialed a telephone number only to find the line was busy.
4. At times when I was ill or tired, I have felt like going to bed early.
5. On some occasions I have noticed that some other people are better dressed than myself.
6. Driving from New York to San Francisco is generally faster than flying between these cities.
7. I believe that most light bulbs are powered by electricity.
8. I go at least once every two years to visit either northern Scotland or some part of Scandinavia.
9. I cannot remember a time when I talked with someone who wore glasses.
10. Sometimes when walking down the sidewalk, I have seen children playing.
11. I have never combed my hair before going out in the morning.
12. I find that I often walk with a limp, which is the result of a skydiving accident.
13. I cannot remember a single occasion when I have ridden on a bus.

Appendix F.

Berkeley Expressivity Questionnaire

Self-rated

For each statement below, please indicate your agreement or disagreement. Do so by filling in the blank in front of each item with the appropriate number from the following rating scale

1	2	3	4	5	6	7
Strongly			Neutral			Strongly Disagree

1. Whenever I feel positive emotions, people can easily see exactly what I am feeling.

1	2	3	4	5	6	7
Strongly			Neutral			Strongly Disagree

2. I sometimes cry during sad movies.

1	2	3	4	5	6	7
Strongly			Neutral			Strongly Disagree

3. People often do not know what I am feeling

1	2	3	4	5	6	7
Strongly			Neutral			Strongly Disagree

4. I laugh out loud when someone tells me a joke that I think is funny.

1	2	3	4	5	6	7
Strongly			Neutral			Strongly Disagree

5. It is difficult for me to hide my fear.

1	2	3	4	5	6	7
Strongly			Neutral			Strongly Disagree

6. When I'm happy, my feelings show.

1	2	3	4	5	6	7
Strongly			Neutral			Strongly Disagree

7. My body reacts very strongly to emotional situations.

1	2	3	4	5	6	7
Strongly			Neutral			Strongly Disagree

8. I've learned it is better to suppress my anger than to show it.

1	2	3	4	5	6	7
Strongly			Neutral			Strongly Disagree

9. No matter how nervous or upset I am, I tend to keep a calm exterior.

1	2	3	4	5	6	7
Strongly			Neutral			Strongly Disagree

10. I am an emotionally expressive person.

1	2	3	4	5	6	7
Strongly			Neutral			Strongly Disagree

11. I have strong emotions.

Appendix G.

Consent Form

INFORMED CONSENT FORM

STAGE 1

Project Title: SOCIAL EXPERIENCES AND PERSONALITY TRAITS

I certify that I am 18 years of age or older, in good health, and wish to participate in a program of research being conducted by Jack Blanchard, Ph.D. in the Department of Psychology at the University of Maryland, College Park, MD 20742.

Purpose:

The purpose of this project is to examine the relationship between mood, social behavior, and personality traits in individuals.

Procedure:

The procedures I voluntarily agree to take part in are:

- I will complete a questionnaire that focuses on social behavior and personality traits.
- I will be asked to provide the names and addresses of my roommates.
- The questionnaire should take about 5-10 minutes.
- I will receive \$10 for my participation after I complete the questionnaire.
- I may or may not be called to participate in an additional study.

Confidentiality:

All information collected during this project will be kept confidential. The Office of Information and Technology (OIT) at the University of Maryland maintains a secured website such that the data is accessible to the experimenter and the employees of OIT who maintain the website. The data are stored in a directory that is secured and is limited to the experimenter and a small number of OIT administrators. My name and personal information will be stored in separate files from my responses on the questionnaire. I will only be identified with a subject number. Presentations or publications of the study will be based on grouped data and will not reveal my identity. At the conclusion of this study, any information I provided on the secured website will be deleted from the internet directory.

Risks:

I may become bored while completing the project. In addition, I may also experience discomfort due to the sensitive nature of some of the questions. If discomfort should result, the following services are available:

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Whenever confidential information is collected there is some risk that this information may somehow be inappropriately disclosed. However, I understand that the researchers are taking clear and specific steps to guard the confidentiality of the information I provide (as outlined in the section on *Confidentiality*).

Benefits:

Although this project is not designed to help me personally, the researchers hope to gain valuable information about the relationship between personality traits and social behavior.

Participant Rights:

By signing this form, I agree that:

- I have freely volunteered to complete the questionnaire.
- I may contact the researchers by phone to ask questions before, during, and after completing the questionnaire.
- I may contact the researchers by phone at any time to obtain verbal or written information about the project.
- I may withdraw from the project at any time without penalty.

Contact Information:

If I have further questions or concerns about this study, I may contact the primary investigator:

Dr. Jack Blanchard, 301-405-8438

University of Maryland College Park

Biology/Psychology Building

College Park, MD 20742

If you have any questions about your rights as a research subject or wish to report a research-related injury, please contact:

Institutional Review Board Office

University of Maryland College Park

College Park, MD 20742

301-405-0678

Participant's Name (Please Print)

Signature

Date

Appendix H.

The Social Adjustment Scale-Self Report

1. What best describes your school program?
☐ Full Time
☐ 3/4 Time
☐ Half Time
2. How many days of classes did you miss in the last 2 weeks?
☐ No days missed
☐ A few days missed
☐ I missed about half the time
☐ Missed more than half the time but did make at least one day
☐ I did not go to classes at all
☐ I was on vacation all of the last two weeks
3. Have you kept up with your class work in the last two weeks?
☐ I did my work very well
☐ I did my work but had some minor problems
☐ I needed help with work and needed help about half the time
☐ I did my work poorly most of the time
☐ I did my work poorly all the time
4. During the last 2 weeks have you been ashamed of how you do your school work?
☐ I never felt ashamed
☐ Once or twice I felt a little ashamed
☐ About half the time I felt ashamed
☐ I felt ashamed most of the time
☐ I felt ashamed all of the time
5. Have you had any arguments with people at school in the last 2 weeks?
☐ I had no arguments and got along very well
☐ I usually got along well but had minor arguments
☐ I had more than one argument
☐ I had many arguments
☐ I was constantly in arguments
6. Have you felt upset at school during the last 2 weeks?
☐ I never felt upset
☐ Once or twice I felt upset
☐ Half the time I felt upset
☐ I felt upset most of the time
☐ I felt upset all of the time
7. Have you found your school work interesting these last 2 weeks?
☐ My work was almost always interesting
☐ Once or twice my work was not interesting
☐ Half the time my work was uninteresting
☐ Most of the time my work was uninteresting
☐ My work was almost always uninteresting

8. How many friends have you seen or spoken to on the telephone in the last 2 weeks?

- ☐ Nine or more friends
- ☐ Five to eight friends
- ☐ Two to four friends
- ☐ One friend
- ☐ No friends

9. Have you been able to talk about your feelings and problems with at least one friend during the last 2 weeks?

- ☐ I can always talk about my innermost feelings
- ☐ I usually can talk about my feelings
- ☐ About half the time I felt able to talk about my feelings
- ☐ I usually was not able to talk about my feelings
- ☐ I was never able to talk about my feelings
- ☐ Not applicable; I have no friends

10. How many times in the last 2 weeks have you gone out socially with other people? For example, visited friends, gone to movies, bowling, church, restaurants, and invited friends to your home?

- ☐ More than 3 times
- ☐ Three times
- ☐ Twice
- ☐ Once
- ☐ None

11. How much time have you spent on hobbies or spare time interests during the last 2 weeks? For example, bowling, sewing, gardening, sports, reading?

- ☐ I spent most of my spare time on hobbies almost every day
- ☐ I spent some spare time on hobbies some of the days
- ☐ I spent a little time on hobbies
- ☐ I usually did not spend any time on hobbies but did watch TV
- ☐ I did not spend any spare time on hobbies or watching TV

12. Have you had open arguments with your friends in the past 2 weeks?

- ☐ I had no arguments and got along very well
- ☐ I usually got along but had minor arguments
- ☐ I had more than one argument
- ☐ I had many arguments
- ☐ I was constantly in arguments
- ☐ Not applicable; I have no friends

13. If your feelings were hurt or offended by a friend in the past 2 weeks, how badly did you take it?

- ☐ It did not affect me or it did not happen
- ☐ I got over it in a few hours
- ☐ I got over it in a few days
- ☐ I got over it in a week
- ☐ It will take me months to recover
- ☐ Not applicable; I have no friends

14. Have you felt shy or uncomfortable with people in the last 2 weeks?
- ☐ I always feel comfortable
 - ☐ Sometimes I feel uncomfortable but could relax after a while
 - ☐ About half the time I feel uncomfortable
 - ☐ I usually felt uncomfortable
 - ☐ I always feel uncomfortable
 - ☐ Not applicable; I was never with people
15. Have you felt lonely and wished for more friends during the last 2 weeks?
- ☐ I have not felt lonely
 - ☐ I have felt lonely a few times
 - ☐ About half the time I felt lonely
 - ☐ I usually felt lonely
 - ☐ I always felt lonely and wished for more friends
16. Have felt bored in your spare time during the last 2 weeks?
- ☐ I never felt bored
 - ☐ I usually did not feel bored
 - ☐ About half the time I felt bored
 - ☐ Most of the time I felt bored
 - ☐ I was constantly bored
17. How many times have you been with a date in the last 2 weeks?
- ☐ More than 3 times
 - ☐ Three times
 - ☐ Twice
 - ☐ Once
 - ☐ None
18. Have you been interested in dating during the last 2 weeks? If you have not dated, would you have liked to?
- ☐ I always interested in dating
 - ☐ Most of the time I was interested
 - ☐ About half the time I was interested
 - ☐ Most of the time I was not interested
 - ☐ I was completely uninterested

The following questions concern your parents and siblings

19. Have you been in contact with any of them in the last 2 weeks?
- ☐ Yes, please go to question
 - ☐ No, please go to question
20. Have you had open arguments with your relatives in the past 2 weeks?
- ☐ We always got along very well
 - ☐ We usually got along very well but had some minor arguments
 - ☐ I had more than one argument with at least one relative
 - ☐ I had many arguments
 - ☐ I was constantly in arguments

21. Have you been able to talk about your feelings and problems with at least one friend during the last 2 weeks?
- ☐ I can always talk about my feelings with at least one relative
 - ☐ I usually can talk about my feelings
 - ☐ About half the time I felt able to talk about my feelings
 - ☐ I usually was not able to talk about my feelings
 - ☐ I was never able to talk about my feelings
22. Have you avoided contact with your relatives these last 2 weeks?
- ☐ I have contacted relatives regularly
 - ☐ I have contacted a relative at least one
 - ☐ I have waited for my relatives to contact me
 - ☐ I avoided my relatives, but they contacted me
 - ☐ I have no contacts with my relatives
23. Did you depend on your relatives for help, advice, money, or friendship during the last 2 weeks?
- ☐ I never need to depend on them
 - ☐ I usually did not need to depend on them
 - ☐ About half the time I needed to depend on them
 - ☐ Most of the time I depend on them
 - ☐ I depend completely on them
24. Have you wanted to do the opposite of what your relatives wanted in order to make them angry during the last 2 weeks?
- ☐ I never wanted to oppose them
 - ☐ Once or twice I wanted to oppose them
 - ☐ About half the time I wanted to oppose them
 - ☐ Most of the time I wanted to oppose them
 - ☐ I always oppose them
25. Have you been worried about things happening to your relatives without good reason in the last 2 weeks?
- ☐ I have not worried without reason
 - ☐ Once or twice I worried
 - ☐ About half the time I worried
 - ☐ Most of the time I worried
 - ☐ I have worried the entire time
26. During the last 2 weeks, have you been thinking that you let any of your relatives down or have been unfair to them at any time?
- ☐ I did not feel that I let them down at all
 - ☐ I usually did not feel that I let them down
 - ☐ About half the time I felt that I let them down
 - ☐ Most of the time I have felt that I let them down
 - ☐ I always felt that I let them down

27. During the last 2 weeks have you been thinking that any of your relatives have let you down or have been unfair to you at any time?

- ☐ I never felt that they let me down at all
- ☐ I felt that they usually let me down
- ☐ About half the time I felt that they let me down
- ☐ I usually have felt that they let me down
- ☐ I am very bitter that they let me down

Appendix I.

Letter of Invitation

To Roommate

We are writing to ask that you assist us with part of our research project, entitled *Social Experiences and Personality Traits of Roommates*, conducted by Dr. Jack Blanchard here at the University of Maryland at College Park. The purpose of our study is to learn about the relationship between feelings, mood, social behavior and personality traits in individuals and their roommates.

Your roommate was recruited and participated in the first portion of this study. Currently we are conducting the second portion of the study. We would like your participation by completing the enclosed questionnaire. **You will receive \$20.00 via campus mail, for your participation.**

This questionnaire will take about 10-20 minutes and we ask that you complete the questionnaire in one sitting. Once you have finished the questionnaire please return it via campus mail in the large envelope addressed to Dr. Jack Blanchard. Also be sure that the self addressed envelope is included within the large envelope. **Your payment will be enclosed in the self addressed envelope therefore, please be sure the information is correct.**

Before completing the questionnaire, please read the Informed Consent Form on the following page, which provides some additional details about our project.

Your answers to this survey are completely confidential. No personal information will be made available to anyone except the research staff directly related to the study. The results of the study will be reported only in an aggregate form, and your identity will be kept confidential. For the results of the study to be valid, it is extremely important that we hear from you.

If you have any questions regarding this study, do not hesitate to contact us at (301) 405-1531 or via e-mail at famstudy@psyc.umd.edu

Thank you in advance for your help with this study!
Sincerely,

Jack J. Blanchard, Ph.D.
Associate Professor, Department of Psychology

General Directions

- Read and sign the enclosed consent form.
- Complete the questionnaires in a private area, in one sitting.
- Make sure the address is correct on the small envelope. Your payment will be sent in this envelope.
- Return the questionnaire and small envelope in the large envelope addressed to J. T. Carreno.
- Wait for your check to arrive in the mail.

Thank you for your participation

It is GREATLY appreciated.

Appendix K.

Consent Form

INFORMED CONSENT FORM

STAGE 2

Project Title: Social Experiences and Personality Traits of Roommates

I certify that I am 18 years of age or older, in good health, and wish to participate in a program of research being conducted by Jack Blanchard, Ph.D. in the Department of Psychology at the University of Maryland, College Park, MD 20742.

Purpose:

The purpose of this project is to examine the relationship between mood, social behavior, and personality traits in individuals and their roommates.

Procedure:

The procedures I voluntarily agree to take part in are:

- I will be asked to provide demographic and contact information such as age, gender, ethnicity, education status, telephone number and email address.
- I will complete a questionnaire, focused on the social behavior and personality traits of my roommate.
- The questionnaire should take about 10-20 minutes.
- I will receive \$20.00 upon receipt of my questionnaire by J. T. Carreno.

Confidentiality:

All information collected during this project will be kept confidential. My name and personal information will be stored in separate files from my responses on the questionnaire. I will only be identified with a subject number. Presentations or publications of the study will be based on grouped data and will not reveal my identity.

Risks:

I may become bored while completing the project. In addition, I may also experience discomfort due to the sensitive nature of some of the questions. If discomfort should result, the following services are available:

UMD College Park Resources:

The Counseling
Center, 301-314-
7651
The Health Center,
301-314-8184
The Psychology
Clinic, 301-405-
4808

Local County Resources:

Crisis Response Service, PG County, 301-927-
4500
Montgomery County Crisis Center, 301-315-
4000
Emergency Psychiatric Risk Dept., 202-675-
7888

Whenever confidential information is collected there is some risk that this information may somehow be inappropriately disclosed. However, I understand that the researchers are taking clear and specific steps to guard the confidentiality of the information I provide (as outlined in the section on *Confidentiality*).

Benefits:

Although this project is not designed to help me personally, the researchers hope to gain valuable information about the relationship between personality traits and social behavior.

Participant Rights:

By signing this form, I agree that:

- I have freely volunteered to complete the questionnaire.
- I may contact the researchers by phone to ask questions before, during, and after completing the questionnaire.
- I may contact the researchers by phone at any time to obtain verbal or written information about the project.
- I may withdraw from the project at any time without penalty.

Contact Information:

If I have further questions or concerns about this study, I may contact the primary investigator:

Dr. Jack Blanchard, 301-405-8438

University of Maryland College Park

Biology/Psychology Building

College Park, MD 20742

If you have any questions about your rights as a research subject or wish to report a research-related injury, please contact:

Institutional Review Board Office

University of Maryland College Park

College Park, MD 20742

301-405-0678

Participant's Name (Please Print)

Signature

Date

Appendix L.

Berkeley Expressivity Questionnaire

Peer-rated

We would like to have your opinions on the roommate who send you this questionnaire package. Please feel free to answer honestly and openly. Again, your responses will be completely confidential.

For each statement below, please indicate your agreement or disagreement. Do so by filling in the blank in front of each item with the appropriate number from the following rating scale.

1	2	3	4	5	6	7
Strongly			Neutral			Strongly Disagree

1. Whenever my roommate feels positive emotions, people can easily see exactly what he/she is feeling.

1	2	3	4	5	6	7
Strongly			Neutral			Strongly Disagree

2. My roommate sometimes cries during sad movies.

1	2	3	4	5	6	7
Strongly			Neutral			Strongly Disagree

3. People often do not know what my roommate is feeling

1	2	3	4	5	6	7
Strongly			Neutral			Strongly Disagree

4. My roommate laughs out loud when someone tells me a joke that he/she thinks is funny.

1	2	3	4	5	6	7
Strongly			Neutral			Strongly Disagree

5. It is difficult for my roommate to hide his/her fear.

1	2	3	4	5	6	7
Strongly			Neutral			Strongly Disagree

6. When my roommate is happy, his/her feelings show.

1	2	3	4	5	6	7
Strongly			Neutral			Strongly Disagree

7. My roommate's body reacts very strongly to emotional situations.

1	2	3	4	5	6	7
Strongly			Neutral			Strongly Disagree

8. I believe my roommate would rather suppress his/her anger than to show it.

1	2	3	4	5	6	7
Strongly			Neutral			Strongly Disagree

9. No matter how nervous or upset my roommate is, he/she tends to keep a calm exterior.

1	2	3	4	5	6	7
Strongly			Neutral			Strongly Disagree

10. My roommates are an emotionally expressive person.

1	2	3	4	5	6	7
Strongly			Neutral			Strongly Disagree

11. My roommate has strong emotions.

1	2	3	4	5	6	7
Strongly			Neutral			Strongly Disagree

12. My roommate is sometimes unable to hide his/her feelings, even though he/she would like to.

1	2	3	4	5	6	7
Strongly			Neutral			Strongly Disagree

13. Whenever my roommate feels negative emotions, people can easily see exactly what he/she is feeling.

1	2	3	4	5	6	7
Strongly			Neutral			Strongly Disagree

14. There have been times when my roommate has not been able to stop crying even when he/she tried to stop.

1	2	3	4	5	6	7
Strongly			Neutral			Strongly Disagree

15. My roommate experiences emotions very strongly.

1	2	3	4	5	6	7
Strongly			Neutral			Strongly Disagree

16. My roommate's feelings are written all over his/her face.

1	2	3	4	5	6	7
Strongly			Neutral			Strongly Disagree

Appendix M.

Willingness to Interact Scale (Modified)

DIRECTIONS: Please circle the extent to which you agree with the following.

1. How willing would you be to go to a movie with your roommate?*

Definitely Willing 1 2 3 4 5 Definitely Unwilling

2. How willing would you be to ask your roommate for advice?

Definitely Willing 1 2 3 4 5 Definitely Unwilling

3. How willing would you be go on a 3-hour bus trip with your roommate?

Definitely Willing 1 2 3 4 5 Definitely Unwilling

4. How willing would you be to invite your roommates to your parents' house?

Definitely Willing 1 2 3 4 5 Definitely Unwilling

5. How willing would you be to invite your roommate to a party, or some other
social function?*

Definitely Willing 1 2 3 4 5 Definitely Unwilling

6. How willing would you be to admit your roommate into your circle of close friends?

Definitely Willing 1 2 3 4 5 Definitely Unwilling

* This item was added to the Willingness to Associate Scale

Appendix N.

Maryland Social Pleasure Scale

1. How pleasurable is it to socialize with your roommate?

- ☐ Completely unpleasurable
- ☐ Somewhat unpleasurable
- ☐ Neutral
- ☐ Somewhat pleasurable
- ☐ Completely pleasurable

2. How much do you enjoy talking to your roommate?

- ☐ I completely enjoy talking to my roommate
- ☐ I Somewhat enjoy talking to my roommate
- ☐ I feel neutral about my conversations with my roommate
- ☐ I somewhat dislike talking to my roommate
- ☐ I completely dislike talking to my roommate

3. How much fun do you have when you are with your roommate?

- ☐ I have a lot of fun when I'm with my roommate
- ☐ I have some fun when I'm with my roommate
- ☐ I have a moderate amount of fun when I'm with my roommate
- ☐ I have a small amount of fun when I'm with my roommate
- ☐ I have no fun when I'm with my roommate

4. How often does your roommate make you laugh?

- ☐ Very often
- ☐ Somewhat often
- ☐ Sometimes
- ☐ Not often
- ☐ Rarely

5. How happy does it make you to spend time with your roommate?

- ☐ It makes me very happy to spend time with my roommate
- ☐ It makes me somewhat happy to spend time with my roommate
- ☐ It sometimes makes me happy to spend time with my roommate
- ☐ It is not often that spending time with my roommate makes me happy
- ☐ It rarely makes me happy to spend time with my roommate

6. How good does it make you feel to be around your roommate?

- ☐ It makes me feel very good to be around my roommate
- ☐ It makes me feel somewhat good to be around my roommate
- ☐ It sometimes makes me feel good to be around my roommate
- ☐ It is not often that being around my roommate makes me feel good
- ☐ It rarely makes me feel good to be around my roommate

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