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## The Effects of Psychopathic Traits on Social Support Networks

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THE EFFECTS OF PSYCHOPATHIC TRAITS  
ON SOCIAL SUPPORT NETWORKS

By

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Bachelor of Science in Psychology  
Tulane University  
2011

A thesis submitted in partial fulfillment of the requirements for the

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## Abstract

Psychopathy is a personality disorder with distinctive behavioral, emotional and interpersonal features. The dual process model of psychopathy conceptualizes the construct via two distinct factors: fearless dominance (FD) and impulsive antisociality (IA). While individuals higher in psychopathic traits are less likely to cooperate with others, research examining the impact of psychopathy on individuals' social networks is lacking. In the current study, 377 first year undergraduate students completed the Multidimensional Personality Questionnaire, the Ten Item Personality Inventory, and ratings regarding their social networks via Qualtrics. Students were asked to list up to ten friends and rate their relationship via a newly developed measure, which factor analyses revealed as having a one-factor solution capturing overall friendship quality. We found that FD was positively related to friendship quality, and the interaction of FD and IA (psychopathy) was negatively related with the proportion of contactability of friends. In addition, friends were recruited and provided friendship and adjective ratings regarding their relationship and view of the participant who referred them. In general, individuals higher in IA were rated more negatively (e.g., annoying, unfriendly). IA also moderated the relationships between FD and adjectival ratings such that those high in FD and IA were rated as more annoying, aggressive, and psychopathic as well as less friendly and enjoyable. Homophily analyses showed that only matching on the same major impacted friendship quality. Lastly, both agreeableness and neuroticism mediated the relationship between IA and friendship quality. This study provides novel information of how individuals view their own social networks and how this relates to psychopathy.

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## Chapter 1: Literature Review

Psychopathy is a personality disorder with distinctive behavioral, emotional, and interpersonal features. The disorder is associated with features such as lack of empathy, deceptiveness, grandiosity, impulsiveness, boldness, fearlessness, and antisociality. A two-factor model of psychopathy, which parses the disorder's features into two distinct factors termed fearless dominance (FD) and impulsive antisociality (IA; Benning, Patrick, Blonigen, Hicks, & Iacono, 2005a), has been used in research examining psychopathic traits in community samples. Though a large body of work has examined the intrapersonal correlates of psychopathy, minimal research examining the impact of psychopathy on interpersonal relationships has been conducted. Of particular interest in this study is the impact of these factors of psychopathy on individuals' social networks.

### Capturing Psychopathy

When examining forensic populations, the Psychopathy Checklist-Revised (PCL-R; Hare 1991, 2003) is used in the majority of research and in clinical applications. The PCL-R conceptualizes psychopathy into two factors, each composed of two facets. Factor 1 comprises the interpersonal (Facet 1) and affective (Facet 2) facets, whereas Factor 2 contains the lifestyle (Facet 3) and antisocial (Facet 4) facets. While Factor 1 captures the manipulateness (Facet 1) and lack of empathy (Facet 2) traits of psychopathy, Factor 2 focuses more on impulsivity (Facet 3) along with criminal and antisocial deviance (Facet 4; Hare, 2003). Consequently, PCL-R total scores are influenced heavily by the externalizing aspects of the disorder, especially as they relate to criminality (Patrick, Hicks, Nichol, & Krueger, 2007). As a result, though the PCL-R is the most widely used and validated measure for assessing psychopathy, it may not accurately capture the interpersonal aspects of the construct in a variety of settings (Skeem, Polaschek,

Patrick, & Lilienfeld, 2011). Thus, alternative measures of psychopathy are needed to understand how the disorder impacts interpersonal functioning in community populations.

A two-factor structure of psychopathy has been proposed to broadly assess the construct across larger, more diverse populations. This model of psychopathy conceptualizes the disorder as having two dominant and unrelated factors: FD and IA (Benning et al., 2005a). FD is associated with traits of grandiosity, boldness, reduced empathy, and fearlessness (Benning et al., 2005a). On the other hand, IA captures the alienation, antisociality, and impulsivity associated with psychopathy (Benning et al., 2005a). It has been suggested that the unique interaction of FD and IA represents psychopathy (Benning, 2013; Lilienfeld, 2013). These two overarching factors lack the overt criminal deviancy aspects of the PCL-R and incorporate the positive adjustment aspects originally conceptualized by Cleckley (1976). However, it is important to note that this two-factor model still shares some similarities with the PCL-R (Poythress et al., 2010). Specifically, IA and PCL-R Factor 2 both capture impulsivity and maladaptive antisocial behaviors (Skeem et al., 2011). Conversely, these models significantly differ, as FD captures more adaptive psychological traits such as higher well-being, emotional stability, social efficacy, and interpersonal assertiveness (Benning et al., 2005a). For instance, IA is positively correlated with criminal tendencies, while FD is uncorrelated with criminality (Witt, Donnellan, Blonigen, Krueger, & Conger, 2009). Thus, the FD/IA model of psychopathy overcomes the limits of the PCL-R by capturing both the psychologically maladaptive aspects of psychopathy via IA *and* its psychologically adaptive aspects via FD.

Additional research focused on examining the relationship between psychopathy and internalizing and externalizing psychopathology further highlights the differential relationships of FD and IA with maladaptive functioning. For example, in a sample of twins from the

community, IA was correlated with greater externalizing psychopathology and FD was negatively associated with internalizing psychopathology on both a phenotypic and genotypic level (Blonigen, Hicks, Krueger, Patrick, & Iacono, 2005). Positive associations between IA and externalizing scales on the Personality Assessment Inventory (PAI; Morey, 1991) measuring antisocial features, aggression, borderline features, alcohol and drug problems were found (Patrick, Edens, Poythress, Lilienfeld, & Benning, 2006). Conversely, internalizing PAI scales capturing anxiety, anxiety related disorders, and somatic complaints were positively associated with IA and negatively associated with FD (Patrick et al., 2006). Therefore, it appears that whereas IA may result in a tendency towards externalizing personality features and psychopathology, FD may serve as a psychologically protective factor against internalizing psychopathology.

The Five Factor Model (FFM) categorizes personality into five factors: neuroticism, conscientiousness, openness to experience, extraversion, and agreeableness (McCrae & John, 1992). Maladaptive variants of the FFM personality traits have been linked to personality disorders (Lynam & Widiger, 2001). In particular, the Elemental Psychopathy Assessment (EPA) was developed on the basis of assessing more extreme maladaptive variants of FFM traits that have been empirically associated with psychopathy (Lynam et al., 2011). After being validated in a large undergraduate sample, the EPA scales were significantly correlated with the FFM traits they were based off of as captured via the Revised NEO Personality Inventory (NEO PI-R; Costa & McCrae, 1992) scales (Lynam et al., 2011).

IA and FD have been found to have differing associations with FFM traits. Research has demonstrated a positive association between IA and neuroticism (Ross, Benning, Patrick, Thompson, & Thurston, 2009; Witt et al., 2009). The relationship between IA and neuroticism is

likely due to the high comorbidity found amongst externalizing symptoms and internalizing psychopathology (Ross et al., 2009). This association suggests that these individuals may be unable to appropriately deal with stressful situations. IA was also negatively associated with conscientiousness, which is likely due to the lack of planfulness and tendency to behave impulsively (Ross et al., 2009; Witt et al., 2009). Overall, the tendency for individuals high in IA to show higher levels of neuroticism and lower levels of conscientiousness suggests a higher likelihood of failure in life's tasks (Ross et al., 2009).

On the other hand, FD has demonstrated different associations with the FFM traits. In particular, research has shown a negative association between FD and neuroticism (Ross et al., 2009; Witt et al., 2009), which further highlights that FD represents a psychologically protective factor when presented with stressful situations. Furthermore, FD is positively associated with extraversion, highlighting the bold features of FD (Ross et al., 2009; Witt et al., 2009) and indicating a more socially appropriate interpersonal style that individuals high in FD may have in comparison to those high in IA (Benning, Patrick, Salekin, & Leistico, 2005b).

### **Psychopathy and Interpersonal Relationships**

While the externalizing behaviors associated with psychopathy can affect overall functioning, they may be particularly detrimental to individuals' abilities to form and sustain healthy interpersonal relationships. Minimal research has been conducted examining the impact of psychopathy on individuals' social networks and relationships with others in a community population. However, some research has looked at how the interaction between social environmental factors and psychopathy can result in negative interpersonal behaviors (e.g., aggressive humor style; Masui, Fujiwara, & Ura, 2013). These negative interpersonal behaviors may become more apparent when individuals are asked to cooperate with others. For example,

when playing an iterated Prisoner's Dilemma game, male (but not female) individuals high in psychopathy have been found to be less likely to cooperate with others on a task in comparison to individuals scoring low in psychopathy (Rilling et al., 2007).

Other researchers have begun to examine the ways individuals with psychopathic traits perceive their relationships, specifically how much value they place on their social partners (Gervais, Kline, Ludmer, George, & Manson, 2013). When individuals with subclinical psychopathy were asked to cooperate with others, they were more likely to defect when they viewed the other person as having a low-benefit relationship value (Gervais et al., 2013). In particular, they also found that individuals higher in psychopathy were less likely to cooperate with individuals who interrupted them during conversation and those who failed to discover cues to aid in future interactions. The ability of individuals with psychopathy to selectively choose which relationships they should cooperate with in order to be socially successful may be specifically associated with FD.

However, the impact that the non-externalizing features of psychopathy have on interpersonal relationships has yet to be fully examined. Some research has focused on the role of FD and power, finding that individuals high in FD are likely to hold leadership positions and have high-risk occupations (Lilienfeld, Latzman, Watts, Smith, & Dutton, 2014). Though the social potency, stress immunity, and fearlessness in FD can protect against internalizing psychopathology, they can also negatively impact interpersonal relationships. Individuals high in FD are higher in extraversion (Ross et al., 2009; Witt et al., 2009) and may possess more relationships than those high in IA, but the propensity toward risk taking behaviors within extraversion may lead individuals high in FD to be destructive in their relationships with others. Furthermore, both IA and FD are associated with low agreeableness, suggesting an overall

relationship between the two factors of the construct of psychopathy and a tendency for individuals with the disorder to be disagreeable (Ross et al., 2009). The disagreeable nature of individuals with psychopathy may negatively impact their abilities to create and sustain long-lasting relationships, as others are less likely to feel pleasant in their presence.

### **Social Networks**

Social networks consist of friendships that serve varying functions, including social support or obtaining a higher social status. Some friendships can be beneficial to a person's psychological well-being by providing companionship and support during stressful situations, whereas other relationships may consist largely of negative interactions that may be detrimental to the people involved (Hartup & Stevens, 1999). Humans' social networks develop throughout the lifespan, and though they may serve different purposes depending on specific life events, the notion of social reciprocity is important throughout (Hartup & Stevens, 1997).

An individual's social network is largely formed on the basis of homophily and propinquity (McPherson, Smith-Lovin, & Cook, 2001). Individuals are more likely to seek and establish friendships with those of who are similar to themselves (homophily), but are even more likely to establish friendships with those who are geographically closer (propinquity; Marmaros & Sacerdote, 2006; McPherson et al., 2001; Stearns, Buchmann, & Bonneau, 2009). Particularly in times of life transitions, individuals are likely to seek support from friendships of those geographically closer to them. For example, Marmaros and Sacerdote (2006) found that college freshmen were more likely to form interracial friendships when living in the same dorms. Thus, individuals were more likely to be friends with others less similar to themselves when they were living in close proximity, highlighting the notion that propinquity may outweigh homophily when individuals are in a transitional phase of life.

Other factors that may impact the type of friends people choose include (but are not limited to) interests, age, gender, and personality. Research that examined the development of friendship networks in first year undergraduate students found that individuals with higher levels of extraversion reported more friends than those low on this trait (Selfhout et al., 2010). Extraverted individuals experience social situations more positively and are inclined to act in ways that attract more social attention towards them (Ashton, Lee, & Paunonen, 2002). Thus, perception regarding the extent of one's network of friendships may be attributed to their outgoing behavior in social contexts. Conversely, individuals with higher levels of agreeableness are significantly more likely to be nominated as a friend (Selfhout et al., 2010). Agreeable individuals are more likely to be cooperative, likeable, friendly and empathetic. The higher likelihood of their nominations as friends may be a result of these positive characteristics that facilitate the maintenance of positive relationships.

### **Quality of Social Relationships and Social Support**

In addition to the development and nature of individuals' social networks, the quality of the friendships within the network is also essential. Festa, McNamara, Barry, Sherman, & Grover (2012) demonstrated that individuals higher in extraversion and agreeableness were more likely to have higher quality friendships. It is not surprising that individuals who exhibit more socially desirable behaviors, such as the social outgoingness associated with extraversion or the cooperativeness associated with agreeableness, are more likely to have higher quality friendships, as these are characteristics that may be central to maintaining positive relationships. Neuroticism, conscientiousness and openness were not significantly correlated with friendship quality; however, there was a trend toward a negative relationship between neuroticism and friendship quality (Festa et al., 2012).

Interpersonal competence domains such as self-disclosure have been found to predict the quality of same-sex friendships in undergraduate students after controlling for gender, class status and personality (Festa et al., 2012). Other domains of interpersonal competence, as captured via the Interpersonal Competence Questionnaire (ICQ; Buhrmester, Furman, Wittenberg, & Reis, 1988), such as initiating interactions and relationships, negative assertion, providing emotional support, and conflict management are also significantly correlated with higher friendship quality (Festa et al., 2012). However, self-disclosure appears to be the strongest predictor of interpersonal competence for friendship quality after taking the other factors into account.

The FFM has also been studied in regards to its relationship with interpersonal competence domains. Individuals higher in extraversion tend to perceive that they have a competent ability to initiate relationships (Jenkins-Guarnieri, Wright, & Hudiburgh, 2012). In contrast, individuals higher in openness and agreeableness are more likely to view themselves as being competent at providing emotional support to their friends (Jenkins-Guarnieri et al., 2012). In another study examining the relationship between personality, psychopathology, and interpersonal competence, low self-disclosure was found to be associated with individuals higher in suspicion who disregard others' needs and use them for their own gain (Muralidharan, Sheets, Madsen, Craighead, & Craighead, 2010). On the other hand, a group of individuals higher in social inhibition, anxiety, avoidance, mistrustfulness, an inability to empathize, and fearfulness of rejection demonstrated low interpersonal competence in negative assertion, emotional support, and self-disclosure (Muralidharan et al., 2010). Thus, self-disclosure may also be a source of social support as it encompasses the act of confiding in another person. Due to the sense of

reciprocal vulnerability that is required for self-disclosure, it may provide additional information regarding the quality of the friendship.

Research has demonstrated that the more socially embedded an individual is in their social network, the greater the empathy they exhibit (Wölfer, Cortina, & Baumert, 2012). The notion of embeddedness refers to the reciprocal friendships and the centrality of that individual to the overall social network, suggesting that relying exclusively on the quantity of friends an individual reports does not accurately capture their social network and its benefits. Wu, Stewart, Huang, Prince and Liu (2011) measured an individual's perception of their social support and the quality and quantity of their relationships via the Close Persons Questionnaire (CPQ; Stansfeld & Marmot, 1992) and found that the greater the perceived quality of a person's social relationships, the more likely they are to seek support from their friends in times of distress. However, there were no associations between the size of an individual's social network and their tendency to seek support from their friends during distress (Wu et al., 2011). Thus, the reciprocity and quality of these social relationships may provide more information regarding their social networks, and potentially serve as better measures of social support networks than the quantity of their friendships.

The concept of social support can be divided into two separate constructs: perceived social support and received social support. Perceived social support refers to how much support an individual believes that their social network will provide for them (Lahey & Scoboria, 2005). In contrast, received social support measures the amount of support an individual receives from their social network during a specific stressful situation (Uchino, 2009). Research suggests that in comparison to received social support, perceived social support may be more instrumental for overall health outcomes (Barrera, 2000; Uchino, 2004; Wills & Shinar, 2000). Perceived social

support is related to positive psychological strengths such as self-efficacy, self-esteem, hope, optimism, and resiliency (Khan & Husain, 2010; Marshall, Parker, Ciarrochi, & Heaven, 2014). It also serves as a moderator for the relationship between these psychological strengths and overall subjective well-being (Khan & Husain, 2010). Conversely, low perceived social support has been associated with negative emotional and behavioral consequences (Demaray & Malecki, 2002). Thus, the amount of social support an individual perceives and receives from their social network can have important beneficial and detrimental consequences.

## Chapter 2: Current Study

The present study sought to examine the effects of psychopathic personality traits on social networks. In particular, this study uses the two-factor model of psychopathy that divides personality features into FD and IA factors to examine whether there is an association between these factors and individuals' social networks. This study examined the association between the formation and depth of social networks in first-year undergraduate students. We sought this specific population because college students are typically in a volatile phase in life in which they develop and maintain new social networks. We investigated how students perceive their relationships within their social networks. In particular, we examined information about the support they receive and the overall quality in their relationships. Specifically, we looked at the type of friends they choose, how they view their friends, how much time they spend doing various activities with their friends, and how their friends view them.

### Hypotheses

We predicted that FD would be positively related with the number of friends named and that IA would be negatively associated with the number of friends named. In addition, FD would be associated with perceiving the quality of the friendship as high, whereas their friends would view the quality of the relationship as lower. We expected that IA would be related to low perceptions of friendship quality by both themselves and their friends. We also expected that friends would view individuals high in FD as being dominant, exciting, persuasive and non-traditional. On the other hand, individuals high in IA would be viewed as aggressive, unfriendly, depressed, not enjoyable, nervous, impulsive, annoying, psychopathic, cold, dishonest, unhelpful and confusing.

We investigated homophily by looking at how similar participants and their friends are to one another as measured via demographic variables and personality. Specifically, we examined age, race/ethnicity, gender, and their major of study. We predicted that participants and their friends would be similar on these variables. We also looked at how personality can be used as a measure of homophily by utilizing a 10-item assessment of the FFM. We expected to find that participants and their friends would score similarly on the five factors. For example, participants high in extraversion are predicted to have friends who are also high in extraversion.

We did not examine propinquity because it is unlikely an appropriate measure for assessing the types of friends individuals in this sample will choose. The University of Nevada, Las Vegas is a predominantly commuter campus. Though the majority of the student body originates from Las Vegas, individuals largely live off-campus, and it is likely that they are not choosing their friends based on how close they live to them. Previous literature suggests that the effect of propinquity applies to very small distances and that it is unlikely to have an impact in undergraduate samples where the majority of students are native to the city and/or live off-campus (Marmaros & Sacerdote, 2006; Stearns et al., 2009). Therefore, propinquity information is likely be less meaningful than examining the role of homophily in social networks in our sample.

Furthermore, we also hypothesized that neuroticism and extraversion would mediate the relationships between FD and the number of friends and their perceived quality of their relationships. Due to the more extraverted and emotionally stable nature of these individuals, they are more likely to believe they have larger social networks and higher quality friendships. On the other hand, agreeableness was predicted to mediate the interpersonal deficits in IA.

## Chapter 3: Method

### Participants

Participants were 491 undergraduate students recruited from University of Nevada, Las Vegas via the Sona system. A total of 114 participants were excluded from the analyses due to missing data ( $N = 94$ ), duplicate data ( $N = 10$ ), or invalid Multidimensional Personality Questionnaire - Brief Form (MPQ-BF; Patrick, Curtin, & Tellegen, 2002) profiles ( $N = 10$ ). Therefore, we were left with a sample size of 377 (mean age = 18.96 years,  $SD = 2.69$ ) for analyses. The sample was 66.8% female and 24.9% male; 8.3% did not disclose their gender. In regards to race/ethnicity, 36.9% were Caucasian, 11.9% were African American, 27% were Asian/Pacific Islander, 14.3% were Hispanic, and 0.3% were Native American. Participants completed an online survey via Qualtrics consisting of a demographic questionnaire, personality self-report questionnaires and questions regarding their social networks where they were asked to name up to 10 friends. Participants were awarded one credit towards their psychology class upon completion of the study.

In addition, the friends that the participants allowed us to contact were sent a link to an online survey via Qualtrics. If the participant only provided a phone number for their friend, the friend was called and if they agreed, they were sent an email with the link. Overall, participants provided consent for a total of 341 friends to be contacted. The survey consisted of a demographic questionnaire, a personality self-report questionnaire, and a questionnaire regarding their relationship with the participant. A total of 63 friends responded to the survey; however, four were excluded due to duplicate data and 24 friends did not complete the survey and were also excluded from analyses. Therefore, we had a total of 35 friends (mean age = 19.97 years,  $SD = 5.38$ ) with sufficient data for our analyses. Participants were 74.3% female with the following

race/ethnicity percentages: 48.6% were Caucasian, 17.1% were African American, 22.9% were Asian, and 11.4% were Hispanic. Each friend who completed the ratings received a \$10 Amazon gift card.

## Measures

**Demographics.** The demographic questionnaire includes 61 questions (see Appendix A). The demographic information inquired about the individual's age, gender, race/ethnicity, marital status, family history, educational history, medical/psychological history, substance use, and criminal activity.

**Multidimensional Personality Questionnaire - Brief Form (MPQ-BF; Patrick, Curtin, & Tellegen, 2002).** The MPQ-BF is a 155 item self-report measure of normal-range personality consisting of 11 primary trait scales. It captures multiple facets of positive emotionality, negative emotionality and behavioral constraint. Patrick and colleagues (2002) demonstrated good internal consistency for each of the primary trait scales with Cronbach alpha's ranging from .74 to .84. The MPQ-BF was used in this study to estimate the FD and IA factors of psychopathy. Benning, Patrick, Hicks, Blonigen, and Krueger (2003) demonstrated that FD and IA can be estimated based off of the MPQ primary traits scales. Specifically, high social potency and low harm avoidance and stress reaction are significant predictors of FD; whereas high alienation and aggression, and low planful control, traditionalism, and social closeness are significant predictors of IA (Benning et al., 2003). In our sample, the correlation between FD and IA was  $r(374) = .17, p = .001$ . The correlation between FD and FDxIA was  $= .03$  ( $p = .519$ ), whereas the correlation between IA and FDxIA was  $.11$  ( $p = .041$ ).

**Ten Item Personality Inventory (TIPI; Gosling, Rentfrow, & Swann, 2003).** The TIPI is a short self-report personality measure that captures the FFM personality dimensions

(extraversion, conscientiousness, neuroticism, openness, and agreeableness) in ten items. For each factor, one item is scored in the keyed direction, and one item is reverse-coded. The participant is instructed to rate how they see themselves on item descriptors using a 7-point likert scale ranging from 1 = “Disagree strongly” to 7 = “Agree Strongly”. The TIPI demonstrates adequate test-retest reliability, over a period of six weeks, with a mean  $r = .72$  (Gosling et al., 2003). The TIPI also shows good convergent validity with FFM measures derived from the International Personality Item Pool (IPIP; Donnellan, Oswald, Baird, & Lucas, 2006) with intercorrelations on each of the five factors ranging from  $r = .48$  to  $.82$  (Ehrhart et al., 2009). Due to the small number of items in the scale, internal consistencies ranged from low to acceptable: Cronbach’s alphas equaled  $.40$  for Agreeableness,  $.45$  for Openness,  $.50$  for Conscientiousness,  $.68$  for Extraversion, and  $.73$  for Emotional Stability (Gosling et al., 2003). In our sample, Emotional Stability was reverse-coded as Neuroticism to maintain comparability with previous psychopathy and FFM research. The internal consistency was low with Cronbach’s alphas ranging from  $.14$  for Agreeableness,  $.35$  for Openness,  $.37$  for Conscientiousness,  $.55$  for Extraversion, and  $.60$  for Neuroticism.

**Friendship quality ratings.** Participants were asked to list up to 10 friends and rate their friendship with each of them. We developed a new measure designed to examine the quality of friendships. In particular, we were interested in investigating the extent to which the frequency of interacting with the person may load onto the same factor as the experience interacting with that person and the perceived emotional closeness in the overall relationship. We decided not to use other friendship quality measures cited in the literature, such as the CPQ, because they were not appropriate for the aims of this study. For instance, the CPQ assesses a larger social network (i.e., anyone in their lives they feel close to) over a specified period of time (i.e., about a year;

Stansfeld & Marmot, 1992). We wanted to design a measure that specifically assessed social networks of undergraduate students and how they perceive their *overall friendships*.

The measure we developed consists of 12 questions which capture three different aspects of relationships on a frequency scale ranging from 1 = “Not at all” to 9 = “Most” (see Appendix B). Questions are divided into three parts where individuals are asked (1) how much time they spend with the friend in four different contexts, (2) the extent of their feelings and attitudes towards the friend, and (3) the content of their interaction with the friend. Though we predicted that one overall factor of perceived social support/friendship quality will emerge, we conducted factor analyses to determine the best way to calculate overall factor score(s).

First, we asked about the context of the interactions. We specifically asked about the amount of time the individual spends with the friend in class because we are interested in a student sample. Asking about the context of extracurricular activities is important as it can provide information about shared interests. Texting and phone calls provide information about the importance of personal interactions in the overall quality of the relationship. Second, we asked about the emotional closeness experienced by the individual in the relationship. Specifically, we asked about how close they feel, how often they self-disclose, and how supported they feel. We chose these three questions because they encompass a range of emotional closeness. Specifically, we were able to assess how much emotional support they receive by asking about their feelings of closeness to the individual and how much they are supported in the relationship. In addition, we asked about self-disclosure as it has been implicated as an important factor in determining the quality of the relationship (Festa et al., 2012; Muralidharan et al., 2010).

Lastly, we asked questions relating to the content of the interactions. Specifically, we ask about the amount of time they engage in activities that each person wants in order to assess the nature of reciprocity of the relationship. A higher quality relationship would likely have more reciprocity. As we are looking interested in personality, we included questions about how they perceive their friend to be in their interactions. This can provide information about how their perception of the friend's charisma and social status impacts their interactions. We also asked how pleasant the individual feels in the friend's presence, as an overall high friendship quality would leave the individual feeling good about their interactions.

In addition to the friendship quality ratings, the friends were also asked to rate the participant on seventeen adjectives. Specifically, they were asked how dominant, aggressive, friendly, depressed, enjoyable, exciting, nervous, persuasive, impulsive, annoying, psychopathic, traditional, warm, honest, helpful, confusing, and antisocial they found the referring participant to be.

## **Procedures**

Participants read and signed a consent form before being allowed to access the questionnaires via Qualtrics. After consenting, participants answered demographic questions, followed by the MPQ-BF, the TIPI, and the friendship ratings. They were asked to provide consent for future contact of the friends they list. After completing the questionnaires, participants were compensated with Sona credit.

After obtaining consent from the participants in the initial survey, their friends were contacted via email or telephone asking to participate in this study. They were sent an email with a link to the survey on Qualtrics where they first signed the consent form before being informed of the participant's name. Upon consenting, they were asked to answer the demographic

questionnaire, the TIPI, and the friendship ratings with the adjectives. After completing the questionnaires, the friend received compensation.

## Chapter 4: Data Analyses

### Factor Analysis

As the friendship ratings were first used in this data set, an exploratory factor analysis was conducted to determine the underlying factors of the measure. It was predicted that friendship quality would be an overall factor that explained the items in this measure. However, if multiple factors emerged after consulting parallel analyses of the scree plot, oblique promax rotation ( $\kappa = 4$ ) would have been used to rotate the factors. We also conducted item response theory analyses and examined the item information curves to determine which items to retain in the final measure.

### Correlations

Correlational analyses were conducted between psychopathy factors and friendship factors. Specifically, correlations between the total number of friends that individuals listed and FD, IA, and the interaction between the two factors (psychopathy) were conducted. These correlations were examined to obtain information regarding the relationships between each psychopathy factor with the individual's perception of the size of their social network. Friendship quality factor scores were calculated based off of both the participant and friend's ratings and each variable was correlated with FD, IA, and psychopathy in order to determine if psychopathic traits are correlated with the overall quality of an individual's perceived social network. In addition, the proportion of friends individuals allow us to contact was calculated and correlated with FD, IA, and psychopathy. These analyses provide further information about whether or not they would want the friend to know they consider them a friend. Additional correlational analyses examined the relationship between each of the psychopathy factors with

each the TIPI personality factors, as well as the relationships between friends' ratings of participants on adjectives and psychopathy factors and social network variables.

To examine how social support is related to homophily, we first computed Q correlations between the participant and their friends' self-reported personalities from the TIPI. Specifically, we calculated the relative match between the participant and each of their friends that chose to participate on agreeableness, extraversion, openness, conscientiousness, and neuroticism. The Q correlation ranges from -1 to +1 and can be interpreted analogously to the standard Pearson's correlation: Absolute values closer to 1 reflect a stronger relationship between the two personality profiles, and values closer to 0 indicate a lack of relationship between the profiles.

Furthermore, we also assessed social support's relationships with more traditional measures of homophily by calculating correlations for disparities between participants and their friends on key demographic variables. We used point biserial correlations to examine how friendship is related to whether or not participants match their friends on race/ethnicity, gender, and their major of study. In these analyses, more positive relationships indicated a stronger relationship between friendship and aspects of homophily. Pearson's correlations were used to investigate the degree to which psychopathy and social support were related to the absolute differences between participants and their friends' ages. In these cases, more negative correlations represented larger relationships between friendship and homophily, as a smaller age disparity indicated greater similarity between participants and their friends. Lastly, Steiger's (1980) *t* tests for dependent correlations were conducted to determine if there were any significant differences between FD and IA, and participant and friend ratings of friendship quality.

### **Regressions**

Hierarchical linear regression analyses were conducted to assess the incremental validity and predictive utility of variables on friendship quality. After conducting correlational analyses, the variables with significant associations with the participant's perception of friendship quality were entered into a two-step regression. We assessed the change in  $R^2$  to determine if any of the variables accounted for a significant amount of the variance.

### **Mediational Analyses**

Mediational analyses were conducted to determine the extent to which the FFM personality traits as measured via the TIPI mediated the relationships between psychopathy factors and social network variables. Specifically, we examined the influence of neuroticism and extraversion on the relationships between FD and the number of friends and the friendship quality ratings. In addition, we investigated the role of agreeableness on the relationships between IA and the number of friends and the friendship quality ratings.

Analyses were conducted using the INDIRECT macro in SPSS using 1000 bootstrapped samples to generate 95% confidence intervals around the parameter estimates for these mediational effects (Preacher & Hayes, 2008). Confidence intervals not including 0 indicated significant mediation of the relationship between psychopathy and social network variables by FFM personality factors.

## Chapter 5: Results

### Factor and Item Response Theory Analyses

To determine the factor structure of the friendship quality measure, we conducted a principal axis factor analysis with all twelve items that is detailed in Table 1. Factor loadings of the items were considered notable if they loaded .30 or greater on the extracted factors. As shown in Figure 1, both the scree plot and the parallel analyses demonstrate a clear one-factor solution, which accounted for 54.4% of the covariance. Therefore, our analyses revealed one dominant factor that accounts for the overall quality of the friendship.

Furthermore, it should be noted that only ten out of the twelve items on the scale loaded onto this overall factor. Specifically, the items assessing the amount of time spent interacting in class (Item 1) and perception that the friend likes to assume roles of higher social status (Item 11) did not yield high factor loadings (see Table 1). Consistent results were obtained for the item information curves for these items, which are provided in Figure 2. Therefore, due to the lack of information provided by these two items, they were excluded from further analyses and the overall friendship quality score was calculated by summing the remaining ten items.

### Correlations

Table 2 gives the zero-order correlations between psychopathy factors and social network variables. Psychopathy was significantly negatively correlated to proportion of contactability, but there were no significant relationships between psychopathy and friendship quality or number of friendships. FD was significantly related to the participant's perception of overall friendship quality, but there were no significant relationships between FD and the friend's perception of friendship quality, number of friendships or proportion of contactability of friends. Furthermore, there were no significant associations between IA and any of the social network variables.

As shown in Table 3, correlational analyses were also conducted examining the relationships between psychopathy factors and the FFM personality traits. As expected, FD was positively correlated with extraversion and openness and negatively correlated with neuroticism. Similarly, IA was positively correlated with neuroticism and negatively correlated with conscientiousness and agreeableness. Psychopathy was only negatively correlated with openness; there were no significant associations with the other FFM traits. In addition, there were no significant correlations between FD and agreeableness and conscientiousness; nor were there any significant associations between IA and openness and extraversion.

### **Friend Ratings**

We also wanted to correlate the friends' ratings of the participant on various traits and friendship quality with the participant's self-reported levels of psychopathic traits. We recognized that there was a large proportion of missing data from the friends and wanted to make sure there was not a bias; therefore, we divided the friends into two groups: 1) the friends who completed the survey ( $N = 35$ ), and 2) the friends that did not complete the survey ( $N = 306$ ). First, we investigated if psychopathic traits influenced the willingness of the friends to complete the survey. The effects of friend response rates (completed vs. not completed surveys) were assessed using one-way between subjects ANOVAs on FD, IA, and psychopathy. There were no significant effects of friend response rates on FD,  $F(1, 339) = 0.13, p = .717$ , IA,  $F(1, 339) = 0.00, p = .998$ , or psychopathy,  $F(1, 339) = 0.49, p = .484$ . Secondly, we investigated if any of the social network variables (friendship quality, number of friends, and proportion of contactability) influenced the willingness of the friends to complete the survey. There were no significant effects of friend response rates on friendship quality,  $F(1, 339) = 0.03, p = .866$ , number of friends,  $F(1, 339) = .12, p = .733$ , or proportion of contactability,  $F(1, 339) = 1.06, p$

= .304. Overall, these results suggest that the results described below were not substantially influenced by psychopathic traits or social network variables.

Friends were asked to rate how dominant, aggressive, friendly, depressed, enjoyable, exciting, nervous, persuasive, impulsive, annoying, psychopathic, traditional, warm, honest, helpful, confusing, and antisocial they found the referring participant to be. Analyses were conducted examining the relationship between ratings on each of these adjectives, psychopathy factors, and the friendship quality as rated by the participant; these are displayed in Table 4. Results indicated that individuals higher in IA were likely to be viewed as aggressive, impulsive, psychopathic, dishonest, and confusing by their friends. On the other hand, there were no significant relationships found between FD and any of the adjectives.

Psychopathy was positively associated with being perceived as aggressive, annoying, psychopathic, and confusing; it was negatively associated with being viewed as friendly and enjoyable. To decompose the adjectives' relationship with this interaction, simple slope analyses were conducted in which the relationship between FD and adjectival ratings were assessed separately at 1 SD above and 1 SD below the mean of IA (see Figure 3). There was a significant positive relationship between FD and "annoying" ratings at high levels of IA ( $\beta = .73, p = .003$ ), but not at low levels of IA ( $\beta = -.20, p = .373$ ). Similarly, there was a significant positive relationship between FD and "aggressive" ratings at high levels of IA ( $\beta = .46, p = .035$ ), but not at low levels of IA ( $\beta = .09, p = .675$ ). There was also a positive trend toward a relationship between FD and "psychopathic" ratings at high levels of IA ( $\beta = .47, p = .057$ ), but not at low levels of IA ( $\beta = -.20, p = .398$ ). Conversely, there was a negative trend toward a relationship between FD and "enjoyable" ratings at high levels of IA ( $\beta = -.45, p = .093$ ), but not at low levels of IA ( $\beta = .30, p = .239$ ). There was also a trend toward a negative relationship between

FD and “friendly” ratings at high levels of IA ( $\beta = -.50, p = .054$ ), but not at low levels of IA ( $\beta = .29, p = .244$ ). There was not a significant relationship between FD and “confusing” ratings at either high levels of IA ( $\beta = .25, p = .313$ ) or low levels of IA ( $\beta = -.36, p = .151$ ). Overall, these results suggest that individuals higher in FD are perceived as more annoying, aggressive, psychopathic, and less friendly and enjoyable only when they are also high in IA.

In regards to social network variables, the number of friends participants named was significantly associated with them being perceived as exciting, persuasive, impulsive, and honest. On the other hand, there were significant correlations between proportion of contactability and the participant being viewed as persuasive and honest. While there were no associations between participants’ friendship quality ratings, the friends’ views of the relationship quality were associated with the participants being viewed as dominant, friendly, enjoyable, exciting, persuasive, warm, honest, and helpful. Furthermore, we also found that participants and the friends had similar ratings regarding the quality of the relationship,  $r(33) = .53, p = .001$ . A post-hoc power analysis using G\*Power 3 (Faul, Erdfelder, Lang, & Buchner, 2007) was conducted examining the effect size of correlations with a sample size of 35. The power of this study to detect a population correlation of .30 was .43.

### **Homophily Analyses**

**Q correlations.** We conducted correlational analyses between participants’ self-reported FFM personalities and their friends’ FFM self-reported personalities. There were no significant relationships found for Extraversion, Agreeableness, Neuroticism or Openness. We did find a significant correlation between Conscientiousness scores,  $r(33) = .37, p = .028$ . Afterward, we conducted Q correlations between the FFM personality profiles of the participants and their friends to see how similarly they matched. Consistent with the results for the individual FFM

traits, the overall values were low, ranging from 0 to .32. Lastly, we conducted a one-sample *t*-test comparing the mean value of the personality Q correlation to examine whether the mean Q correlation differed from 0. We found that overall, friends' personalities showed a slight resemblance to each other ( $M = .13, SD = .07$ ),  $t(34) = 10.1, p < .001$ . However, there were no significant relationships between the personality Q correlation and social network variables (see Table 5).

**Demographic variables.** Dichotomous match-nonmatch variables were created for participants and their friends on gender, race, and major of study that indicated whether or not participants and their friends matched each other in these domains. These match variables were each correlated with friendship ratings in order to determine the relationship between homophily and friendship quality ratings in Table 5.

There were no significant relationships between social network variables or psychopathic traits, and gender and race matching. However, there was a significant relationship between matching on major of study and friendship quality. There were no significant relationships between matching on major of study and other social network variables or psychopathic traits. When examining the friends' ages, there were two scores that can be considered outliers (ages 33 and 47) because there was an 11-year difference between age 33 and the next highest age of 22. Due to our small sample size, we did not want to drop the outliers. Instead, we Winsorized the friends' ages by transforming the two outliers to the next highest age (i.e., 22). Next, we created a discrepancy variable of the absolute differences between the ages of the participants and their friends. We correlated age discrepancy with friendship quality, FD, and IA. There were no significant relationships found between age discrepancy and social network variables, FD, or

psychopathy. However, there was a significant negative relationship between age discrepancy and IA, indicating that participants higher in IA preferred older friends.

**Regressions.** We assessed the incremental validity and predictive utility of the variables that had significant associations with friendship quality (FD and matching major) via hierarchical linear regression analyses. As shown in Table 6, two regressions were conducted. In each regression, one of the two variables was entered into step one and then the remaining variable was entered into step two. At step two, the variance accounted for ( $\Delta R^2$ ) by FD (0.7%) was non-significant ( $p = .623$ ); however, the variance accounted for by matching major of study (22.1%) was significant ( $\beta = .48, p = .012$ ).

### **Mediational Analyses**

Correlational analyses were conducted between the FFM personality traits and the social network variables used in the mediational analyses below. Extraversion was significantly positively correlated with overall friendship quality,  $r(341) = .12, p = .026$ . Similarly, agreeableness was also significantly positively correlated with overall friendship quality,  $r(341) = .14, p = .008$ . On the other hand, neuroticism was significantly negatively correlated with overall friendship quality,  $r(341) = -.11, p = .043$ . There were no significant relationships between number of friends and extraversion, agreeableness and neuroticism. There were also no significant relationships between proportion of contactability and extraversion, agreeableness and neuroticism. Due to the lack of relationships between personality and number of friends and proportion of contactability, mediational analyses were not conducted for the relationships between psychopathy and number of friends and proportion of contactability.

We conducted bootstrapped mediation analyses (Preacher & Hayes, 2008) in order to examine the role of FFM personality traits in the relationships between psychopathy factors and

overall friendship quality, the results of which are given in Table 7. In the first set of analyses, extraversion and neuroticism were entered as mediators for the relationships between FD and overall friendship quality. Neither extraversion nor neuroticism mediated the relationships between FD and friendship quality. In the second set of analyses, agreeableness and neuroticism were entered as mediators for the relationship between IA and overall friendship quality. Results indicated that both neuroticism and agreeableness independently and together significantly mediated the relationship between IA and overall friendship quality.

## Chapter 6: Discussion

While previous research has examined the relationship between personality traits and social networks in undergraduates (Ashton et al., 2002; Festa et al., 2012; Jenkins-Guarnieri et al., 2012; Selfhout et al., 2010), this study is the first to investigate the impact of psychopathy on social network variables in undergraduate students. As we had predicted, FD was associated with a higher perception of friendship quality. Unexpectedly, though there were no significant zero-order relationships between IA and friendship variables, we found that low levels of agreeableness and high levels of neuroticism mediated the relationship between IA and perceived friendship quality. Interestingly, the unique combination of FD and IA traits was associated with a lower likelihood of allowing researchers to contact friends. Furthermore, we demonstrated that friends with the same major were more likely to have a higher relationship quality, whereas other demographic or personality matches were not associated with friendship quality. These findings provide a basis for the development of a novel area of research in the psychopathy literature.

### Psychopathy and FFM

Consistent with the literature, FD was positively associated with extraversion and openness and negatively associated with neuroticism (Ross et al., 2009; Witt et al., 2009). Similarly, as expected, IA was positively associated with neuroticism and negatively associated with agreeableness and conscientiousness (Benning et al., 2005b; Ross et al., 2009; Witt et al., 2009). Surprisingly, we did not find a negative association between FD and agreeableness as the literature has previously found (Ross et al., 2009). However, it may be that individuals high in FD did not view themselves as being less agreeable and as we did not obtain friends' ratings of the participants' FFM personality trait levels, we cannot conclude how agreeable/disagreeable

others view them. Therefore, future research should consider including friends' ratings of FFM personality.

The lack of association may also be due to the psychometric properties of the TIPI. As the TIPI solely uses 10 items to capture five personality domains, there are only two items per domain. Gosling et al. (2003) noted low to acceptable internal consistency amongst the domains; in particular, Agreeableness had the lowest Cronbach's alpha at .40. As noted above, in our sample the internal consistency was lower than Gosling et al. (2013) for Agreeableness, with a Cronbach's alpha at .14. Therefore, it may be that the lack of agreeableness findings is due to the TIPI's psychometric limitations, particularly given that the association between FD and agreeableness are typically more subtle than that between IA and agreeableness (Benning et al., 2005b; Ross et al., 2009; Witt et al., 2009).

### **Psychopathy and Friendship Quality**

We developed a new measure designed to capture friendship quality in this particular population as other measures, such as the CPQ (Stansfeld & Marmot, 1992) were not appropriate for this study. Our factor analyses revealed that only 10 out of the 12 items loaded onto a single factor capturing overall friendship quality. Of note, the amount of time individuals spent in class with their friends did not contribute significantly to friendship quality. We speculate that the lack of contribution from the time spent in class item is likely due to two factors. First, UNLV students may spend less time together in physical classrooms as they have access to a variety of online courses. In addition, students may not take specific courses at the same time and in sequential order, thus leading disparities in when students take particular courses at the same time. In future replications, replacing the item asking about time spent in class with time spent communicating via social media (i.e., Facebook, Twitter, Instagram, etc.) would likely provide

more information regarding the quality of the friendship due to the increasingly prevalent use of social media as a form of communication among college-aged youth (Ellison, Steinfeld, & Lampe, 2007; Ellison, Steinfeld, & Lampe, 2011). Individuals may use social media as a form of relationship maintenance as the distinction between online and offline communication has become increasingly blurred (Yang & Brown, 2013).

In regards to psychopathic traits, we found that individuals high in FD were likely to rate the quality of their relationship as being high. On the other hand, there was no relationship between FD and their friends' perception of the quality of the relationship. This discrepancy suggests that individuals higher in FD are more likely to see themselves more positively in their relationships than their friends do. These findings suggest that the benefits of FD traits may only pertain to subjective friendship ratings and not objective measures of friendships (e.g., number of friends).

We were interested in determining whether FFM traits mediated the relationship between psychopathy and friendship quality. Our results suggest that while the relationship between FD and participant-perceived friendship quality is driven solely by psychopathic traits, the same is not likely true for IA. Instead, the relationship between IA and overall friendship quality is not significant unless agreeableness and neuroticism mediate it. This suggests a suppression effect is present as both agreeableness and neuroticism enhance the relationship between IA and friendship quality. These results suggest that despite IA being strongly related to agreeableness and neuroticism, these two FFM traits influence friendship quality more strongly than IA. Specifically, low levels of agreeableness and high levels of neuroticism may negatively impact the quality of the social relationship.

### **Psychopathy and Other Social Network Variables**

To capture the quantity of individuals' social networks, participants were given the opportunity to name up to ten friends allowing us to obtain a total number of friends score. While we expected that individuals high in FD would be likely to name more friends and individuals high in IA would name fewer, we did not find these associations. A possible explanation for our lack of findings is that we did not specify a definition for "friend"; therefore, it may be that participants high in IA named family members and spouses as friends. However, we found that only 2 of the 35 friends (6%) who were included in our analyses had matching last names to the participants. Although the percentage of shared last names is small, this is not the only indicator of familial relationships. Furthermore, since we did not collect information regarding the nature of the relationship we cannot conclude whether or not listing family members as friends had an impact of our IA findings. Another confound may be that we restricted the number of friends they could list, thus participants high in FD may have listed more than ten friends if they had been given the opportunity. Our data support this notion as the modal number of friend ratings provided by participants (30.2%) was 10.

As a third social network variable, we calculated a proportion of contactability score for each participant. Though we did not find any associations of this variable with the individual psychopathy factors, we did find a negative association between the interaction of psychopathy and contactability. This suggests that the distinct combination of FD and IA traits leads individuals to be less likely to allow us to contact their friends. This finding is particularly important, as this represents one of the first meaningful relationships with the FDxIA interaction. In particular, the lack of findings of psychopathy with other social network variables suggests that this combination of psychopathic traits may only be maladaptive in a particular area of interpersonal interactions.

## **Friends' Perceptions**

Interestingly, we also found that individuals higher in psychopathy were more likely to be viewed as more aggressive, annoying, psychopathic, and confusing; they were also rated as less friendly and enjoyable. These findings provide further support for the notion that the intersection of both FD and IA traits results in a personality distinct from IA and FD individually. In particular, taking together the unwillingness of the participant to have us contact their friends and the friends perceiving them more negatively on these adjectives, suggests that psychopathy is likely not interpersonally adaptive and may only effect interpersonal perceptions.

In regards to the individual psychopathy factors, friends perceived participants high in IA to be more aggressive, impulsive, psychopathic, dishonest, and confusing. These findings are consistent with the traits associated with IA (Benning et al., 2005b). Surprisingly, we did not find any significant relationships between any of the expected adjectives (dominant, exciting, persuasive, and non-traditional) and FD. In particular, the lack of an association between FD and dominant is notably unexpected as dominance is an inherent aspect of FD. One possibility for the lack of findings may be due to the small sample size of friends who provided ratings. In addition, it may also result from the subjective nature of these adjective ratings. It is possible that the friends who provided them did not have many interactions with the participants where they noted these qualities; therefore, obtaining ratings from a larger number of friends per participant would likely allow for more information. Lastly, it may be that friends matched the participants on some of these adjectives, such as non-traditional; therefore, the friend may not believe the participant to be any less traditional in the context of their own worldview. In the future, it would be beneficial to obtain the same adjective ratings from the participant about each friend.

Friends perceived friendship quality to be associated with the participant being dominant, friendly, enjoyable, exciting, persuasive, warm, honest and helpful. As there was only one overall factor of friendship quality in our measure, the association of these adjectives with overall friendship quality may be better explained by the constructs assessed in the items. We conducted post-hoc exploratory analyses to examine if the friendship quality measure items mediated the relationships between overall friendship quality and the adjectives. We found that the charismatic item (item 10) mediated the relationships between friendship quality and dominance, 95% CI [.44, 3.83]; as well as persuasiveness, 95% CI [.02, 4.15]. On the other hand, the ratings of how enjoyable, exciting, and friendly the participant seemed are likely capturing the pleasantness aspect of the quality measure (item 12). Similarly, mediation analyses demonstrated that the pleasantness item mediated the relationships between friendship quality and enjoyable (95% CI [2.44, 11.41]), exciting (95% CI [1.33, 7.89]), and friendly (95% CI [2.71, 11.27]).

Lastly, warm, honest, and helpful may tap into the closeness and supportive aspect of friendship quality (items 5, 6 and 7). Analyses demonstrated that together these three items mediated the relationships between friendship quality and warm (95% CI [1.29, 7.78]), honest (95% CI [3.84, 9.90]) and helpful (95% CI [4.42, 10.20]). However, only the item capturing how close they feel to the individual (item 5) mediated the relationships between friendship quality and warm (95% CI [.00, 6.06]), honest (95% CI [.65, 7.95]), and helpful (95% CI [.63, 8.47]). Furthermore, the item assessing how supportive they believed the individual to be (item 7) mediated the relationships between friendship quality and honest (95% CI [1.45, 6.56]), and helpful (95% CI [.71, 7.13]). Self-disclosure (item 6) by itself did not appear to mediate the relationships between friendship quality and these adjectives. Therefore, these preliminary

analyses suggest that consistent with the information values for these items in the IRT results, the closeness and supportiveness in the friendship most strongly drive the relationships between friendship quality and these adjectives. However, further research looking at these relationships should be done to gain a more comprehensive understanding of these relationships in a larger sample size.

### **Homophily**

In regards to homophily analyses, we did not find that participants and their friends were similar to each other on personality, as we had expected. As mentioned earlier, the participants' and friends' ratings of their FFM personality traits were self-report. This may have been due to the low internal consistency of the FFM traits on the TIPI described above. In addition, it may also be that the participants and friends of this study do not have an accurate perception of how they rate on these traits. It would be beneficial in the future to obtain ratings from both the friends and participants on each other. Another explanation for this finding is that we had a low response rate from the friends; thus, it may be that having a larger sample of friends may provide more information about the similarity of participants and their friends. Despite this limitation, we found that having the same major of study uniquely predicted the quality of the friendship. This result is particularly interesting as the time spent in class item was excluded in calculating the friendship quality overall score as it did not contribute significantly to the overall factor (see above). This suggests that students having similar academic interests leads to a higher quality friendship that does not depend on how much time they physically spend together in an academic environment. As mentioned earlier, propinquity was not deemed appropriate for this sample, and the combination of these findings provides further support for this notion.

### **Limitations**

This is the first study to investigate the influence of psychopathic traits on the social networks of young adults. Although we were able to obtain data from a relatively large sample size of participants, we had difficulty recruiting their friends. Therefore, our sample size of friends was small ( $N = 35$ ) limiting the generalizability of our findings. We believe this limitation may be due to: 1) we did not contact the friends immediately after the participant completed the survey and 2) we did not guarantee payment for the friends. We attempted to counteract some potential limitations by having the friends complete shorter surveys than the participants; however, in the future more steps need to be taken in order to increase the response rate.

Other studies have recruited friends together rather than relying on a nomination. For example, Bagwell and colleagues (2005) recruited dyads of friends via flyers and campus-wide email announcements. Furthermore, their overall sample size was smaller than ours with a total  $N$  of 102. Thus, if we were to undergo a similar recruitment strategy we might sacrifice our large participant sample size as well as other social network variables beyond friendship quality (i.e., number of friends and proportion of contactability). While Miller, Hyatt, Rausher, Maples & Zeichner (2014) also contacted informants (not restricted to friends) who were nominated by recruited participants, they found that on average the informants had known the participant for 14.9 years. In addition, the informants were guaranteed payment. Therefore, it may be that because participants nominated individuals “who knew them well”, without specifying that they needed to be a friend as well as guaranteed payment, the informants were more likely to respond. However, in the current study our aim was to examine solely friendships and we did not have the financial resources to guarantee payment.

Another limitation of this study is that we did not establish a definition of “friend” in our questionnaire. Thus, we do not know if participants listed family members or significant others as friends. In the future, we plan to correct this by establishing a specific definition of “friend” and asking the participants to describe their relationship with the individual they list as a sanity check. In addition, we also had difficulties with our friendship quality items. As noted above we decided to drop two items from analyses because they had low loadings on the overall factor of friendship quality. Replacing the time spent in class item (item 1) with an item capturing the amount of time individuals spend with each other via social media outlets will likely serve as more appropriate in this population (see above). Similarly, item 11 should also be excluded and replaced with multiple items capturing areas of friendship quality we did not originally include (e.g., reciprocity, guidance, reliability, and trust). These additional items would likely increase the scope of the positive aspects associated with friendships.

Another limitation of our measure was that it only captured the positive aspects of friendship quality. While the scope of our measure was to assess the positive aspects associated with friendship, this may have contributed to the lack of an association between friendship quality and IA. While IA may not be associated with less positive aspects of friendship, it may be related to negative aspects of friendship. Thus, a more complex assessment of both positive and negative aspects of friendship is needed to investigate this possibility.

### **Future Directions**

As noted above, there are several limitations to consider when interpreting the results of this study; however, these results will inform future developments of studies in this area. In the future, we plan to recruit first-year undergraduate students using flyers and email announcements. They will undergo the same set of questionnaires with the aforementioned

changes to the friendship quality measure and the establishment of a definition for “friend” added. Furthermore, we will increase the number of friends individuals may name as we speculated our restriction of ten friends may have limited the quantity of friends individuals high in FD may have listed. As we now have a protocol in place, we plan to contact friends shortly after the participant nominates them. In addition, we will ask both the participants and friends to rate each other on the FFM personality traits via the TIPI as well as themselves.

Previous research has demonstrated that when a participant holds the hand of someone they know well, they show reduced brain activity while processing a threat in comparison to holding a stranger’s hand (Coan, Schaefer, & Davidson, 2006). Expanding upon this line of research using physiological measures to examine the influence of psychopathic traits on participants’ abilities to benefit from social support when under the threat of a shock may provide more understanding of the biological underpinnings of psychopathy. In particular, this could allow for a more comprehensive understanding of the relationship between psychopathy and friendship. As stated previously, this is a relatively understudied area; however, addressing the interpersonal deficits associated with these psychopathic personality traits is necessary. Gaining more insight into the biological processes of psychopathy in an interpersonal context can provide more information which can be utilized to counteract the negative aspects and enhance the positive aspects.

Expanding beyond undergraduates and looking at populations where psychopathic traits are of higher prevalence would be particularly useful for guiding interventions. In particular, adapting this study for individuals with professions where psychopathic traits such as fearlessness and glibness/charm are seen to be beneficial could provide valuable insight into the social networks of successful psychopathy (Babiak & Hare, 2006; Benning, Venables, & Hall, in

press; Lykken, 1995). This study can also provide a basis to collect information for the social networks of more high-risk populations such as sexual workers or incarcerated inmates. Gaining information about the social realms and perceptions of individuals who are involved in the legal system may help to serve as a basis for social-based intervention and prevention strategies. Overall, this study provides preliminary evidence that psychopathic traits do have an impact on social relationships; however, further research is needed in varying populations in order to gain a more comprehensive understanding of this topic.

Table 1

*Principal Axis Factor Analysis of the Friendship Quality Measure*

Item	One- Factor	
	Initial	Extraction
1. Time spent in class	.05	.02
2. Time spent in extracurricular activities	<b>.33</b>	<b>.30</b>
3. Time spent texting	<b>.59</b>	<b>.60</b>
4. Time spent on phone calls	<b>.50</b>	<b>.67</b>
5. You feel very close to this individual	<b>.86</b>	<b>.84</b>
6. You frequently engage in self-disclosure with this individual	<b>.78</b>	<b>.74</b>
7. This individual is very supportive	<b>.81</b>	<b>.84</b>
8. You do activities they desire	<b>.80</b>	<b>.72</b>
9. You do activities you want	<b>.77</b>	<b>.69</b>
10. This person is charismatic	<b>.66</b>	<b>.63</b>
11. He/she likes to assume roles of higher social status	.20	.18
12. You feel pleasant in the presence of this individual	<b>.74</b>	<b>.74</b>

*Note.* Factor loadings greater than .30 appear in boldface.

Table 2

*Correlations between Psychopathy and Social Network Variables*

Social Network Variable	FD	IA	FDxIA	N
Participant Rating of FQ *	.18**	.04	.01	344
Friend Rating of FQ	.08	-.04	-.26	35
Number of Friends	.09	.03	.01	376
Proportion of Contactability	.00	.04	-.14**	348

*Note.* FD = Fearless Dominance; IA = Impulsive Antisociality; FDxIA = Psychopathy; FQ = Friendship Quality. \* $p < .05$ ; \*\* $p < .001$ . Asterisks after each variable denote the significance of the difference between correlations for FD and IA using Steiger's (1980) t test for dependent correlations.

Table 3

*Correlations between Psychopathy and FFM*

FFM Personality Trait	FD	IA	FDxIA
Extraversion	.54**	.00	.03
Agreeableness*	-.03	-.20**	-.03
Conscientiousness	.04	-.29**	-.04
Neuroticism	-.41**	.27**	.02
Openness**	.28**	.04	-.12*

*Note.* FD = Fearless Dominance; IA = Impulsive Antisociality; FDxIA = Psychopathy.  $N = 369$ ;

\*  $p < .05$ ; \*\*  $p < .001$ . Asterisks after each variable denote the significance of the difference between correlations for FD and IA using Steiger's (1980)  $t$  test for dependent correlations.

Table 4

*Correlations between Friend's Ratings of Adjectives, Psychopathy, and Friendship Quality*

	FD	IA	FDxIA	Participant Rating of FQ	Friend Rating of FQ	Number of Friends	Proportion of Contactability
Dominant <sup>^</sup>	.07	.30	-.03	.12	.45**	.30	-.15
Aggressive*	.16	.57**	.34*	.16	.15	.17	-.01
Friendly <sup>^</sup>	-.07	-.16	-.39*	.04	.52**	.33	-.22
Depressed*	-.32	.29	-.14	.08	.25	.17	-.25
Enjoyable <sup>^</sup>	-.05	-.06	-.34*	.24	.60**	.26	-.22
Exciting <sup>^</sup>	.15	-.19	-.32	.27	.67**	.38*	-.27
Nervous	-.01	-.18	.14	.10	.32	.09	.10
Persuasive <sup>^</sup>	.30	-.09	-.25	.19	.53**	.43*	-.40*
Impulsive	.16	.48**	-.05	.08	.30	.40*	-.10
Annoying	.20	.30	.50**	.21	.04	.13	-.04
Psychopathic	.06	.38*	.40*	.21	-.11	-.08	.14
Traditional*	.25	-.20	.01	.20	.18	.08	.06
Warm <sup>^</sup>	-.01	-.24	-.32	.04	.52**	.29	-.30
Honest*/ <sup>^</sup>	.06	-.37*	-.26	.08	.51**	.35*	-.34*
Helpful <sup>^</sup>	-.01	-.28	-.31	.20	.56**	.25	-.29
Confusing*	-.12	.35*	.34*	.04	-.20	-.17	.18
Antisocial	-.12	-.05	.10	-.08	-.16	-.24	.10

Note. FD = Fearless Dominance; IA = Impulsive Antisociality; FDxIA = Psychopathy; FQ = Friendship Quality. \*  $p < .05$ , \*\*  $p < .001$ ;

<sup>^</sup>  $p < .05$ , <sup>^^</sup>  $p < .001$ ;  $N = 35$ . Asterisks after each variable denote the significance of the difference between correlations for FD and IA using Steiger's (1980) t test for dependent correlations. The “<sup>^</sup>” symbol after each variable denotes the significance of the difference between correlations for participant and friend ratings of friendship quality using Steiger's (1980) t test for dependent correlations.

Table 5

*Correlations between Homophily Variables, Psychopathy, and Social Network Variables*

	FD	IA	FDxIA	Participant Rating of FQ	Friend Rating of FQ	Number of Friends	Proportion of Contactability	N
Age Discrepancy	-.03	-.38*	-.34	.19	.35	.04	-.17	31
Gender Match	-.17	.08	-.02	-.01	-.16	-.20	.12	32
Race Match	.10	.06	.05	.02	.09	-.03	.07	23
Major Match <sup>^</sup>	.20	-.13	.24	.46*	-.06	-.31	.18	29
Q Personality	-.12	-.09	.25	.02	.12	-.25	-.03	35

Note. FD = Fearless Dominance; IA = Impulsive Antisociality; FDxIA = Psychopathy; FQ = Friendship Quality. \*  $p < .05$ , \*\*  $p < .001$ ;

<sup>^</sup>  $p < .05$ , <sup>^^</sup>  $p < .001$ . Asterisks after each variable denote the significance of the difference between correlations for FD and IA using Steiger's (1980) t test for dependent correlations. The “^” symbol after each variable denotes the significance of the difference between correlations for participant and friend ratings of friendship quality using Steiger's (1980) t test for dependent correlations.

Table 6

Regressions on Participant Rating of Friendship Quality

Variable Entered	Friendship Quality			
	1		2	
	$\beta$	$\Delta R^2$	$\beta$	$\Delta R^2$
<i>Step 1</i>		.21		.00
FD	-		.01	
Major Match	.46*		-	
<i>Step 2</i>				
FD	-.09	.01	-.09	
Major Match	.48*		.48*	.22

Note. FD = Fearless Dominance. \*  $p = .01$

Table 7

*Mediation of the Relationships between Psychopathy and Participant Ratings of Friendship Quality by FFM*

Mediators	Relationship between FD and Friendship Quality		Relationship between IA and Friendship Quality	
	Point estimate	95% CI	Point estimate	95% CI
Extraversion	0.38	[-1.05, 1.79]	-	-
Neuroticism	0.36	[-.65, 1.48]	-0.63	[-1.51, -0.08]
Agreeableness	-	-	-0.55	[-1.21, -0.13]
Total	0.74	[-1.16, 2.55]	-1.17	[-2.17, -0.47]

*Note.* FD = Fearless Dominance; IA = Impulsive Antisociality; FFM = Five Factor Model

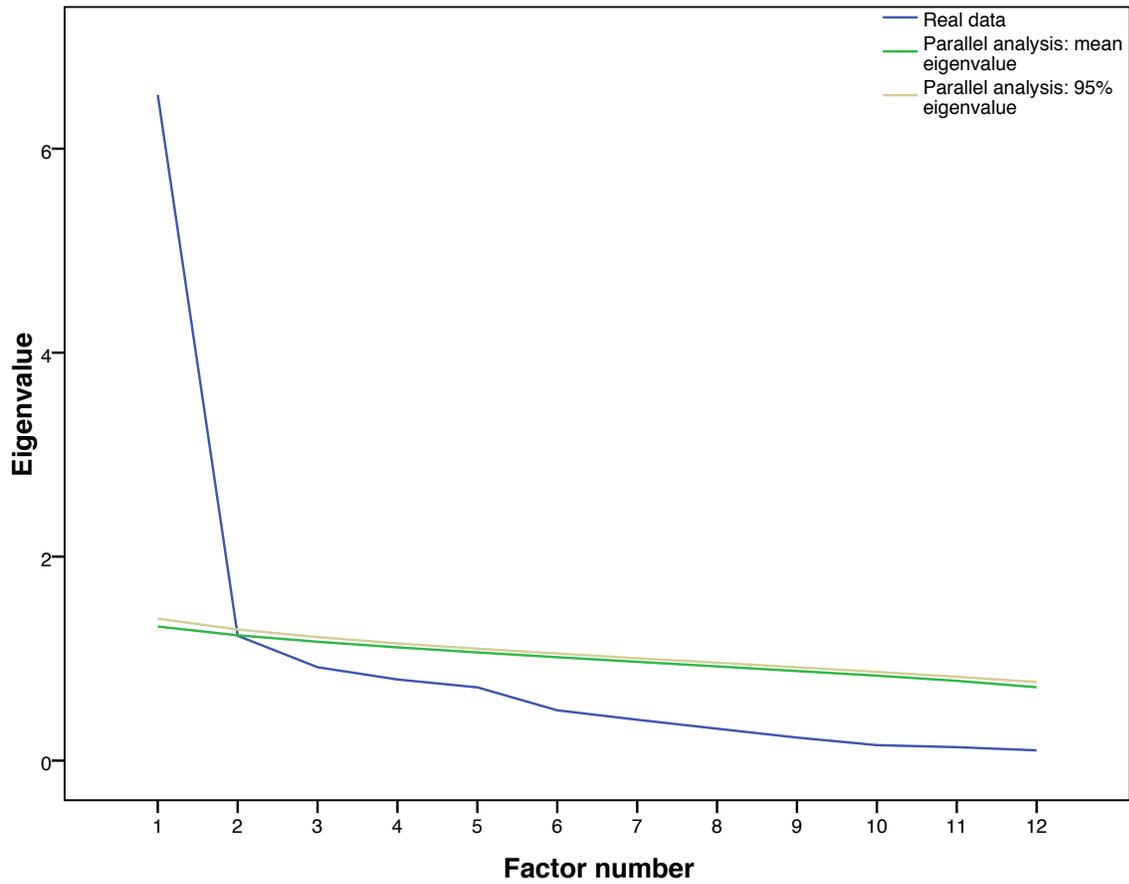


Figure 1. Scree plot for the parallel analysis for the Friendship Quality measure with all twelve items.

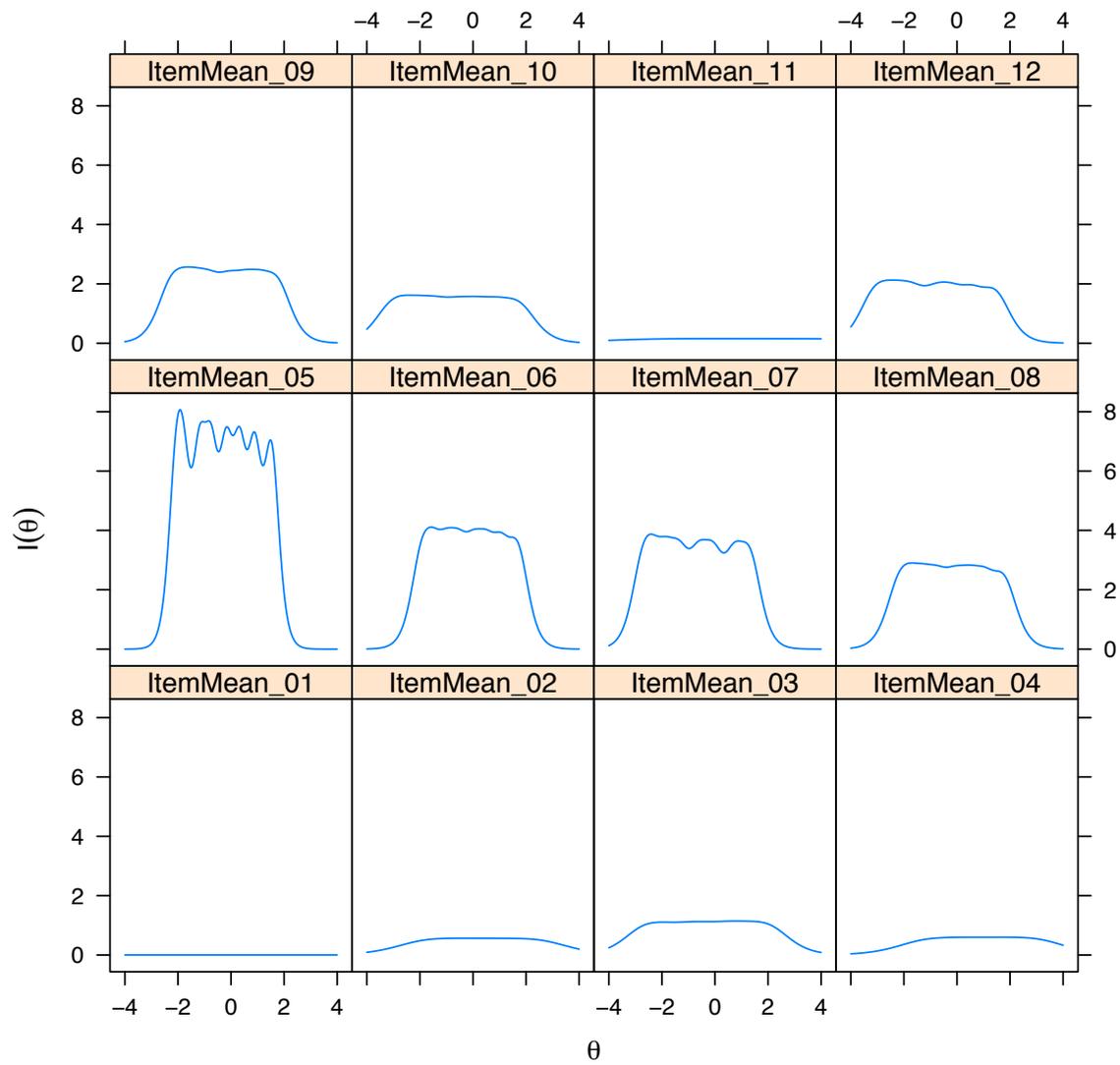


Figure 2. Item information curves for the twelve items of the Friendship Quality measure.

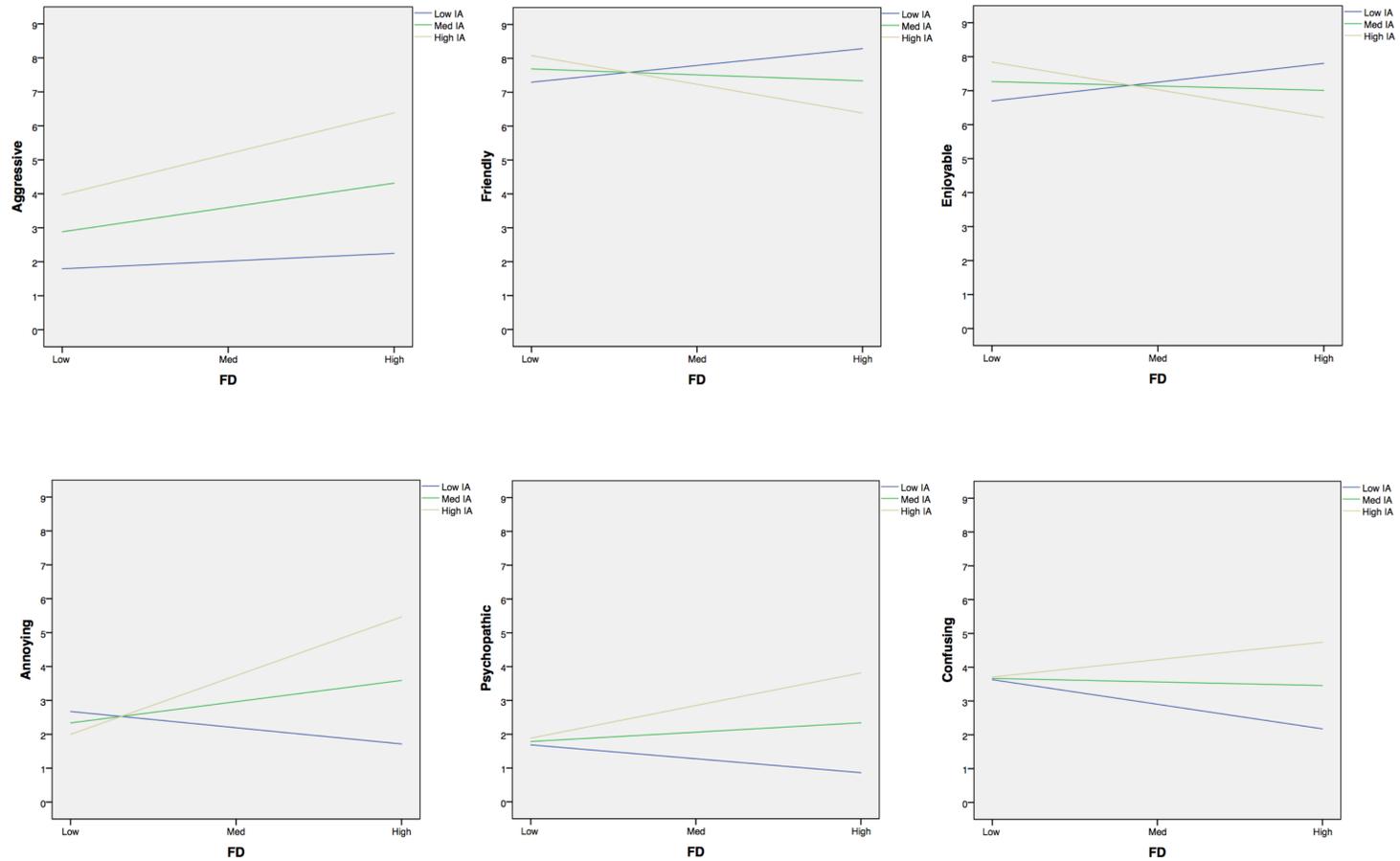


Figure 3. Simple slope analyses for adjectives.

## Appendix A

### Demographic Questionnaire

1. What is your age? (in years)
2. What is your gender? 1 = Male 2 = Female
3. Do you wear eyeglasses or contact lenses? 1 = No 2 = Yes
4. Which are you wearing today? 1 = I am wearing glasses. 2 = I am wearing contacts 3 = I am not wearing glasses or contacts right now.
5. Is your vision corrected to 20/20 (approximately) with the use of contacts or glasses? 1 = No 2 = Yes
6. Do you have hearing difficulties? 1 = No 2 = Yes
7. Please explain your hearing difficulties if you have any.
8. Which hand do you usually write with? 1 = Right hand 2 = Left hand 3 = Both
9. Are you currently under a physician's care for a physical or medical condition? 1 = No 2 = Yes
10. Please describe your physical or medical condition.
11. Have you had any past health problems, including head injuries? 1 = No 2 = Yes
12. Please describe your past health problems, including head injuries.

13. Are you currently taking any prescription medications? 1 = No 2 = Yes
14. Please specify your current prescription medications.
15. How many hours of sleep did you get last night?
16. What is your approximate height in inches? (for example, 5' = 60, 5'6" = 66, 6' = 72, 6'6" = 78)
17. What is your approximate weight in pounds?
18. Have you ever been diagnosed or treated for a psychiatric condition(s)? 1 = No 2 = Yes
19. Please specify what psychiatric conditions you have been diagnosed or treated for.
20. What is the maximum number of alcoholic beverages you have ever consumed in a 24 hour period?
21. How many alcoholic beverages do you consume on average (in any given week)?
22. How much caffeine (e.g., cups of coffee, tea, or cans of soda) do you consume on average in a day?
23. Are you Spanish/Hispanic/Latino? 1 = No 2 = Yes, Mexican, Mexican American, Chicano 3 = Yes, Puerto Rican 4 = Yes, Cuban 5 = Yes, other Spanish/Hispanic/Latino
24. If you identify yourself as other Spanish/Hispanic/Latino, please specify.
25. Which of these races do you identify with? 1 = White 2 = Black, African American, or Negro 3 = American Indian or Alaska Native 4 = Asian Indian 5 = Chinese 6 = Filipino

- 7 = Japanese  
8 = None of these choices
26. Which of these races do you identify with?
- 1 = Korean  
2 = Vietnamese  
3 = Other Asian  
4 = Native Hawaiia  
5 = Guamanian or Chamorro  
6 = Samoan  
7 = Other Pacific Islander  
8 = Some other race  
9 = Not applicable – I already stated by race
27. If you identify yourself as Other Asian, Other Pacific Islander, or some other race, please specify.
28. How many cigarettes do you smoke in a usual day?
- 1 = I have never smoked.  
2 = 10 cigarettes or less  
3 = 11-20 cigarettes  
4 = 21-30 cigarettes  
5 = 31 cigarettes or more  
6 = 10 cigarettes or less, but I don't smoke now.  
7 = 11-20 cigarettes, but I don't smoke now.  
8 = 21-30 cigarettes, but I don't smoke now.  
9 = 31 or more cigarettes, but I don't smoke now.
29. What is your marital status?
- 1 = Married  
2 = Divorced  
3 = Widowed  
4 = Engaged  
5 = Live-in relationship (more than six months)  
6 = Never been married
30. How many years have you been married? (0-80)

31. How many times have you been married? 0 = Never 1 = Once 2 = Twice  
3 = Three times 4 = Four times 5 = Five times  
6 = Six times 7 = Seven times 8 = Eight times or more
32. How many times have you been divorced? 0 = Never 1 = Once 2 = Twice  
3 = Three times 4 = Four times 5 = Five times  
6 = Six times 7 = Seven times 8 = Eight times or more
33. How many live-in relationships of at least six months have you had? 0 = None 1 = One 2 = Two  
3 = Three 4 = Four 5 = Five  
6 = Six 7 = Seven 8 = Eight or more
34. How many biological children do you have? 0 = None 1 = One 2 = Two  
3 = Three 4 = Four 5 = Five  
6 = Six 7 = Seven 8 = Eight or more
35. How many non-biological children do you have? (for example, stepchildren or adopted children) 0 = None 1 = One 2 = Two  
3 = Three 4 = Four 5 = Five  
6 = Six 7 = Seven 8 = Eight or more
36. What is your highest level of education? 1 = Didn't attend high school 2 = Attended but didn't graduate high school 3 = Graduated high school  
4 = GED 5 = Some college, but no degree 6 = Two-year college degree (e.g., Associate's degree)  
7 = Four- 8 = Master's degree (e.g., 9 =

		year college degree (e.g, BA or BS)	MA, MS, MBA)	Doctoral degree (e.g., PhD, MD, JD)
37.	Are you in school now?	1 = No	2 = Yes	
38.	What are you studying?			
39.	Are you currently employed?	1 = No	2 = Yes	
40.	What is your current occupation? (for example, electrical engineer, stock clerk, farmer, homemaker)			
41.	What was your most recent occupation? (for example, electrical engineer, stock clerk, farmer, homemaker)			
42.	What is your current total household income level to the nearest thousand dollars? (for example, 10000, 35000, 126000)			
43.	What was your relationship to the woman who raised you?	1 = Biological mother	2 = Adoptive mother	3 = Stepmother
		4 = Not applicable		
44.	Is she still alive?	1 = No	2 = Yes	
45.	How old is she now? (in years)			
46.	What year did she die?			
47.	What was her highest level of education?	1 = Didn't attend high school 4 = GED	2 = Attended but didn't graduate high school 5 = Some college, but no degree	3 = Graduated high school 6 = Two-year college degree (e.g., Associate's degree)

- 7 = Four-year college degree (e.g, BA or BS)      8 = Master's degree (e.g., MA, MS, MBA)      9 = Doctoral degree (e.g., PhD, MD, JD)
48. What was her usual occupation when you were growing up? (for example, electrical engineer, stock clerk, farmer, homemaker)
49. What was your relationship to the man who raised you?      1 = Biological father      2 = Adoptive father      3 = Stepfather  
4 = Not applicable
50. Is he still alive?      1 = No      2 = Yes
51. How old is he now? (in years)
52. What year did he die?
53. What was his highest level of education?      1 = Didn't attend high school      2 = Attended but didn't graduate high school      3 = Graduated high school  
4 = GED      5 = Some college, but no degree      6 = Two-year college degree (e.g., Associate's degree)      7 = Four-year college degree (e.g, BA or BS)      8 = Master's degree (e.g., MA, MS, MBA)      9 = Doctoral degree (e.g., PhD, MD, JD)
54. What was his usual occupation when you were growing up? (for example, electrical engineer, stock clerk, farmer, homemaker)
55. How many biological siblings do you have? (both      0 = None      1 = One      2 = Two)

- brothers and sisters, half-  
brothers or half-sisters, and  
including any who are now  
deceased)
- 3 = Three    4 = Four    5 = Five  
6 = Six    7 = Seven    8 = Eight or more
56. How many non-biological  
siblings do you have? (for  
example, stepbrother or  
adopted sister)
- 0 = None    1 = One    2 = Two  
3 = Three    4 = Four    5 = Five  
6 = Six    7 = Seven    8 = Eight or more
57. Where are you in the birth  
order of your siblings?
- 1 = First  
or only  
child  
4 = Fourth    5 = Fifth    6 = Sixth  
7 =    8 = Eighth    9 = Ninth or later  
Seventh
58. Have you ever been  
arrested?
- 1 = No    2 = Yes
59. If yes, please describe the  
charges.
60. Have you ever been  
convicted of a crime?
- 1 = No    2 = Yes
61. If yes, please describe the  
conviction.

## Appendix B

### Friendship Quality Ratings

In this task, you will be presented with a series of statements to describe the characteristics and friendship of those you consider friends. Choose the ONE answer that best applies. Read each statement and decide which of the answer choices is most applicable.

1	2	3	4	5	6	7	8	9
Not at all		Slightly		Moderately		Strongly		Most

Using the scale above, how much time do you spend with the individual in the following contexts:

1. Class
2. Extracurricular activities
3. Texting
4. Phone calls

Using the same scale, please answer the following questions about your feelings and attitudes towards this individual:

5. You feel very close to this individual
6. You frequently engage in self-disclosure with this individual
7. This individual is very supportive

Using the same scale, please answer the following questions relating to your interactions with this individual:

8. You do activities they desire
9. You do activities you want.
10. This person is charismatic
11. He/ she likes to assume roles of higher social status.
12. You feel pleasant in the presence of this individual.

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- Yang, C. & Brown, B. B. (2013). Motives for using Facebook, patterns of Facebook activities and late adolescents' social adjustment to college. *Journal of Youth Adolscence, 42*, 403-416.

## Curriculum Vitae

*Stephanie Marie Molina*  
molins1@unlv.nevada.edu

### EDUCATIONAL BACKGROUND

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**Ph.D. in Clinical Psychology** August 2013 - Present  
**University of Nevada, Las Vegas (Las Vegas, NV)**  
Advisor: Stephen Benning, Ph.D.

**B.S. in Psychology, *magna cum laude* with Honors in Psychology** August 2007- May 2011  
**Tulane University (New Orleans, LA)**  
*Minor:* Spanish  
*Award:* The Rosa Cahn Hartman Prize in Psychology

**Universidad Complutense de Madrid (Madrid, Spain)** September 2009- June 2010  
Georgetown in Madrid Program

### PROFESSIONAL TALKS

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**Molina, S. M.,** Hall, J. R., & Patrick, C. J. (2013, March). *Traumatic brain injury in offenders: the roles of psychopathy, fearlessness, and disinhibition.* Paper presented at the 2013 American Psychology-Law Society Annual Conference, Portland, OR.

### POSTER PRESENTATIONS

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**Molina, S. M.,** & Benning, S. D. (2015, September). *The relationships between psychopathy factors and postauricular and startle blink reflexive responses to emotional pictures and sounds.* Poster presented at the 55th Annual Meeting of the Society for Psychophysiological Research, Seattle, WA.

**Molina, S. M.,** Barchard, K. A., Brouwers, V., Westfall, R. S., Benning, S. D. (2015, June). *Convergent validity of the Inventory of Psychopathic Meanness.* Poster presented at the 6<sup>th</sup> Biennial Meeting of the Society for the Scientific Study of Psychopathy, Chicago, IL.

**Molina, S. M.,** Pierce, M. E., & Benning, S. D. (2015, June). *Relationships between psychopathy and friendships, personality, education, and health behaviors.* Poster presented at the 6<sup>th</sup> Biennial Meeting of the Society for the Scientific Study of Psychopathy, Chicago, IL.

**Molina, S. M.,** Ait Oumeziane, B., & Benning, S. D. (2015, May). *Postauricular and startle blink reflexes assess consummatory but not anticipatory emotional processing.* Poster presented at the 95<sup>th</sup> Annual Convention of the Western Psychological Association, Las Vegas, NV.

Schubert, K. N., **Molina, S. M.,** & Benning, S. D. (2015, May). *The association between factors of psychopathy and risk taking and risk perception.* Poster to be presented at the 95<sup>th</sup> Annual Convention of the Western Psychological Association, Las Vegas, NV.

Schubert, K. N., **Molina, S. M.**, & Benning, S. D. (2015, May). *Associations between factors of psychopathy, demographics, externalizing, impulsivity and sensation seeking*. Poster to be presented at the 95<sup>th</sup> Annual Convention of the Western Psychological Association, Las Vegas, NV.

**Molina, S. M.**, Pierce, M. E., & Benning, S. D. (2015, May). *Relationships between psychopathy and friendships, personality, education, and health behaviors*. Poster presented at the 95<sup>th</sup> Annual Convention of the Western Psychological Association, Las Vegas, NV.

**Molina, S. M.**, Ait Oumeziane, B., & Benning, S. D. (2014, September). *Postauricular and startle blink reflexes assess consummatory but not anticipatory emotional processing*. Poster presented at the 54<sup>th</sup> Annual Meeting of the Society for Psychophysiological Research, Atlanta, GA.

Ait Oumeziane, B., **Molina, S. M.**, & Benning, S. D. (2014, September). *ERPs assess consummatory but not anticipatory emotional visual attention*. Poster presented at the 54<sup>th</sup> Annual Meeting of the Society for Psychophysiological Research, Atlanta, GA.

Wrenn, K., Paytas, J., Mercado, K., **Molina, S. M.**, Ait Oumeziane, B., & Benning, S. D. (2014, May). *Big five personality factors and economic outcomes, health coverage, and higher education: A state-level analysis*. Poster presented at the University Nevada, Las Vegas 2014 Annual Psi Chi Research Conference, Las Vegas, NV.

**Molina, S. M.** & Wyland, C. L. (2012, January). *The effects of perspective taking on the ability to successfully control unwanted thoughts*. Poster presented at the 13<sup>th</sup> Annual Meeting of the Society of Personality and Social Psychology, San Diego, CA.

## RESEARCH EXPERIENCE

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### Graduate Assistant

August 2013- Present

### Psychophysiology of Emotion and Personality Lab

University of Nevada, Las Vegas, Psychology Department (Las Vegas, NV)

Supervisor: Stephen Benning, Ph.D.

Recruiting, training, and supervising research assistants to administer psychophysiological experiments and adhere to study procedures.

Responsible for data supervision, including psychophysiological data reduction, database management and data back up.

### *Effects of Personality on Social Networks and Social Support during Stress*

- A study investigating the effects of personality on social networks and social support during the stress of a shock.  
Developing and programming the experiment via PsychoPy, Python, and Qualtrics.  
Conducting data analyses via SPSS.

### *Development of the Inventory of Psychopathic Meanness*

Assisting in the development of a new psychopathy measure capturing the meanness aspects of the disorder.

- Assisting in data analyses.

- Developing a psychophysiological study designed to validate the factors captured by this measure.

***Personality Traits and Physical Risk***

Validating a novel laboratory task developed to assess individuals' enjoyment of physical risk taking.

Trained and supervised research assistants running the study.

Assisting in data analyses.

***Modeling Hedonic Processing and Anhedonia in Depression Study***

Testing anhedonia using a tripartite model that separates positive emotional processing into hedonic "liking", motivational "wanting", and reward "learning" in patients with atypical and melancholic depression, and healthy controls in order to identify candidates for endophenotypes of depression.

Applying sensors and obtaining psychophysiological measurement.

Administering and scoring the Inventory of Depressive Symptomatology (Clinician-Rated; IDS-C) and the Structured Clinical Interview for DSM-IV TR Axis I Disorders (SCID-I/P) in a clinically depressed community sample.

Assisting in psychophysiological data analyses via Matlab and SPSS.

**Research Assistant**

July 2012- June 2013

**University of South Florida, Mental Health Law and Policy Department (Tampa, FL)**

*Supervisor: Jason Hall, Ph.D.*

Prepared a manuscript for publication examining the relationship between psychopathy and traumatic brain injury in an offender population.

Assisted in a study examining the relationship between personality traits and substance abuse and rule breaking behaviors with offender populations. Duties include: visiting residential treatment center, composing and administering questionnaires, contacting the IRB and inputting and examining data.

- Analyzing psychophysiological (heart rate variability and skin conductance response) data.

**Research Assistant**

August 2011- June 2012

**Tulane University/Southeast Louisiana Veterans Health Care System (New Orleans, LA)**

*Supervisor: Joseph Constans, Ph.D.*

Assisted in the Modification of Attributional Style lab examining the effects of a computer-based modification program on coping ability after exposure to a traumatic film clip. Duties included: running participants, collecting, inputting and examining data.

Researched information for future development of an ICU-based violence prevention program. Duties included: collecting information from other studies highlighting violence prevention programs in action, acquiring scales and treatment manuals.

**Researcher**

August 2010- May 2011

**Tulane University, Department of Psychology (New Orleans, LA)**

*Supervisor: Carrie Wyland, Ph.D.*

- Developed and conducted research as an honors thesis project, examining the effects of perspective-taking on an individual's ability to successfully suppress unwanted thoughts. Researched theories and designed the experiment, including gathering and creating materials.

Independently ran the study on participants, and collected, inputted and analyzed data using SPSS.

Compiled manuscript entitled “*The ego depleting effects of perspective-taking on thought suppression.*”

## CLINICAL EXPERIENCE

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**Doctoral Practicum Student** August 2015- Present  
**Desert Psychological/The Offices of Dr. Stephanie Holland (Las Vegas, NV)**

*Supervisors: Stephanie Holland, Psy.D., Amilie M. Dubois, Psy.D., & Sarah Ahmad, Psy.D.*

Conducting individual psychotherapy with adjudicated youth at Caliente Youth Center in Caliente, Nevada and the Youth Parole Bureau transition program using an integrative theoretical approach.

Maintaining a case load of approximately seven individual therapy clients.

Administering, scoring, interpreting, and writing integrated psychological assessments for forensic child custody cases, and children in the custody of the Department of Family Services and Nevada Youth Parole Bureau.

Gaining experience working with individuals involved in the criminal justice system with varying diagnoses (personality disorder, conduct disorder, mood disorders, etc.) and learning the components of conducting civil forensic evaluations.

**Doctoral Practicum Student** August 2014- Present  
**The UNLV Partnership for Research, Assessment, Counseling, Therapy and Innovative Clinical Education (PRACTICE; Las Vegas, NV)**

*Supervisors: Michelle Paul, Ph.D., Jason Holland, Ph.D., Stephen Benning, Ph.D., & Chris Heavey, Ph.D.*

Administering, scoring, interpreting, and writing integrated psychological assessments for adults and children.

Conducted adult individual and couples outpatient therapy using an integrative theoretical approach.

Gaining experience working with a variety of mental illness, including: depression, anxiety, schizophrenia and personality disorders.

## TEACHING EXPERIENCE

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**Part-Time Instructor** August 2015- Present  
**University of Nevada, Las Vegas (Las Vegas, NV)**

- Teaching two sections of an undergraduate-level Introduction to Psychology course.
- Instructing approximately 65 students.

## SCHOLARSHIPS & AWARDS

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Honorable Mention at the 2016 UNLV Graduate Research Forum	2016
GPSA Sponsorship Award- Fall 2015	2015
Graduate Access Scholarship	2015
Patricia Sastaunik Scholarship	2015
Summer Session Scholarship	2015
GPSA Sponsorship Award- Summer 2015	2015

UNLV Psi Chi Research Conference (2 <sup>nd</sup> Place Award)	2014
Graduate Access Scholarship	2013
American Psychology-Law Society's Diversity Travel Award	2013

## **LEADERSHIP & SERVICE**

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**Diversity Committee Member** October 2015- Present

### **Society for Psychophysiological Research Committee to Promote Student Interests**

Serving as a committee member of the diversity subcommittee, which strives to promote diversity within SPR.

Assist in the preparation for the diversity reception held at the annual conference.

**Mentor** January 2014- Present

### **Outreach Undergraduate Mentoring Program, UNLV (Las Vegas, NV)**

Mentoring traditionally under-represented undergraduate students interested in pursuing graduate school in psychology.

**Secretary** August 2013- May 2014

### **Clinical Student Committee, UNLV (Las Vegas, NV)**

Acted as a liaison between the Clinical Psychology students and faculty.

Organized social events and promote peer support within the clinical program.

## **PROFESSIONAL TRAININGS**

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**10-day Comprehensive Training in Dialectical Behavior Therapy: Parts I & II** 2015

*Alan Fruzzetti, PhD*

## **PROFESSIONAL SERVICE**

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**Ad Hoc Reviewer** – *Nevada State Undergraduate Research Journal*

## **PROFESSIONAL AFFILIATIONS**

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Society for the Scientific Study of Psychopathy

Society for Psychophysiological Research

Nevada Psychological Association