

THE INTERPLAY OF PERSONALITY ON PSYCHOLOGICAL
DISTRESS, WITH THE MEDIATION OF SOCIAL SUPPORT

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ABSTRACT

Psychological distress is described as unpleasant feelings or emotions that negatively impact an individual's level of functioning (Ridner, 2004, Williams, 2003). Furthermore, the personality traits of neuroticism and extraversion are strongly associated with psychological distress. Specifically, higher levels of neuroticism and lower levels of extraversion are linked to higher levels of psychological distress. However, the mechanisms that underlie these links are not well understood. Social support is one plausible candidate as a mechanism through which neuroticism, and extraversion are linked to psychological distress. The proposed study examined the extent to which social support mediates the association between neuroticism and psychological distress and between extraversion and psychological distress. This study used data from the Midlife Development in the United States (MIDUS) study, which includes a sample of 7,108 adults ranging in age from 25 to 74 years old. The results showed that extraversion and neuroticism were negatively correlated. Extraversion was positively correlated with social support, and negatively correlated with psychological distress. Neuroticism was negatively correlated with social support, and negatively correlated with psychological distress. Social support was also negatively correlated with psychological distress. A series of regression analyses were run in SPSS in order to test the proposed mediations. No support for the proposed mediations were found, but extraversion, social support, and

neuroticism were found to each independently predict psychological distress. Study implications, limitations, and the suggested direction of future research are all discussed

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CHAPTER 1

INTRODUCTION

Background

Psychological distress, particularly in the form of various mental illnesses such as depression and anxiety, is common in the United States. According to the National Institute of Mental Health (NIMH, 2012), and in accordance with data from The National Survey on Drug Use and Health (NSDUH), an estimated 43.7 million adults age 18 or older suffer from some form of psychological distress. At the time, this represented approximately 18.6 percent of all U.S. adults (NIMH). This number comes from the entirety of NSDUH respondents for non-institutionalized population aged 18 years old or older residing within the United States (NIMH).

The NIMH conservatively estimates the total cost associated with serious forms of psychological distress, (individual cases of distress that are severely debilitating and affect about 6 percent of the adult population), to be in excess of \$300 billion per year (NIMH, 2012). This cost does not include loss of earnings, disability benefits, and health care expenditures of individuals who are negatively affected by psychological distress, but in a less severe manner than the previously noted 6 percent (NIMH). Of those paying out of pocket, among all Americans, 36.2 million people paid for mental health services totaling \$57.5 billion in 2006. This means the average expenditure per person was \$1,591 within one year (NIMH).

Furthermore, psychological distress has the potential to influence many aspects of daily life including but certainly not limited to an individual's weight, anger management, physical health, thought patterns, stress level, life satisfaction, sexual interest, and work performance (Ridner 2004; Williams, 2013). Moreover, psychological distress is associated with poor mental, physical, and emotional functioning. For example, higher levels of psychological distress are tied to an increased risk of mortality (Russ et al., 2012). However, many of the mental and behavioral health problems associated with psychological distress are preventable, or at the least treatable, when proper coping and stress management techniques are applied, or proper psychological help is utilized (American Psychological Association, 2015).

Statement of the Problem

Given that psychological distress is common and associated with poor functioning, it is important to understand its correlates with specific individual different characteristics like personality traits, and the potential underlying mechanisms. To date, research has demonstrated that the personality traits of extraversion and neuroticism are correlated with psychological distress (Pai & Carr, 2010; Rose et al., 2010.) Specifically, lower levels of extraversion and higher levels of neuroticism are associated with higher levels of psychological distress (Pai & Carr; Rose et al.). However, little is known about the mechanisms that underlie these associations. Social support, which is related to extraversion, neuroticism, and psychological distress, is one possible mechanism. As such, it is possible that social support mediates the association between extraversion and psychological distress and neuroticism and psychological distress.

Study Purpose

The study examined the interplay between the personality traits of extraversion and neuroticism, social support, and psychological distress. Specifically, this study assessed the extent to which social support mediates the association between neuroticism and psychological distress and between extraversion and psychological distress. The findings shed light on the potential role of social support as a mechanism that underlies correlations between these personality traits and psychological distress.

Significance of Study

As stated above, the findings will improve our understanding of whether social support is a mechanism through which neuroticism and extraversion are correlated with psychological distress. If the findings support the hypotheses (see specific hypotheses below), this would suggest that social support is a useful target intervention in the reduction of psychological distress for those individuals who present with higher levels of neuroticism and lower levels of extraversion.

CHAPTER 2

REVIEW OF THE LITERATURE

The Personality Traits of Extraversion and Neuroticism

Personality refers to individuals' relatively stable individual difference characteristics of thoughts, emotions, and behaviors (e.g, Eysenck, H J, 1972; Fiest & Fiest, 2009, Funder, 1997; McCabe & Fleeson, 2012). The Big 5 Model of Personality is a widely accepted theory used to describe these individual differences. This model posits that there are five broad personality traits, including openness, conscientiousness, extraversion, neuroticism, and agreeableness (McCabe & Fleeson, 2012). Research has shown that these personality traits show consistency across observation, self-reports, and interviews (Eysenck, H J; Fiest & Fiest; Funder; McCabe & Fleeson). Additionally, the presence of these personality traits has been supported across a wide range of participants from different cultures and backgrounds, and individuals from a variety of different age groups. (Schacter, Gilbert, & Wegner, 2011). As such, the current study focuses on extraversion and neuroticism (described below) because of their strong associations with psychological distress.

Extraversion is defined as assertiveness, talkativeness, and sociability (McCabe & Fleeson, 2012; McCrae & Costa, 2003). Higher levels of extraversion are associated with several positive outcomes such as lower levels of anxiety (Fremont, Means, & Means, 1970) greater positive affect and life satisfaction (Costa & McCrae, 1980), and more

positive objective life events (Magnus, Diener, Fujita, Pavot, & William, 1993). Furthermore, extraversion is relatively stable across adulthood. For example, Costa et al., (1986) studied age differences in extraversion, and found that individuals scored only slightly lower in extraversion at an older age than at a younger age. Another study by Billstedt et al., (2014) examined the stability of extraversion over time in a population of women who were followed from mid-life to older adulthood. Women were first examined in 1968-1969 and again 37 years later in 2005-2006 using the Eysenck Personality Inventory. All women were born in either 1918, 1922, or 1930 (Eaves & Eysenck, 1975). Mean levels of extraversion were stable at both times, which indicate stability for extraversion at the population level. Taken together, this research suggests that extraversion is a relatively stable personality trait.

Neuroticism is defined as fear, anxiety, moodiness, worrying, and loneliness (Thompson, 2008). Higher levels of neuroticism are associated with greater self-consciousness, frustration, and reactivity to stress and lower emotional stability (Cacioppo, 2007; Eysenck 1967; Matthews & Deary 1998; Norris, Larsen, & Cacioppo, 2007,). Neuroticism also precedes many common mental disorders such as depression, phobia, panic disorder, other anxiety disorders, and substance use disorder (Hettema, Neale, Myers, Prescott, Kendler, 2006; Ormel et al., 2013). Moreover, neuroticism is relatively stable across adulthood. For example, Costa and colleagues 1986, used data from the National Health and Nutrition Examination Survey Epidemiologic Follow-up Study to examine age differences in neuroticism and other Big 5 Personality traits. After being analyzed, the data showed that older subjects were only slightly lower in neuroticism. Data also suggested that age trends were not curvilinear. They compared this

data with data from 654 participants in the Augments Baltimore Longitudinal Study of Aging. Results showed that sampling and attrition did not bias results of the personality variables. Overall, cross sectional findings from both samples supported the notion that personality is predominantly stable across adulthood. Thus, similar to extraversion, neuroticism is also a relatively stable personality trait.

Social Support

Emotional support is defined as communication that meets an individual's emotional or affective needs (Schaefer, Coyne, & Lazars, 1981). This type of support does not necessarily directly solve a particular problem, but rather it is meant to elevate an individual's mood (Schaefer et al.). Emotional support can come in a variety of different forms, but three of the most common come in the forms of support from friends, family, and an individual's partner or spouse (Schaefer et al.).

Emotional support from friends (i.e., friend support) is defined as the perceived or received emotional support provided by close friends. For example, imagine you have had a really hard day week at work and on Friday night, your best friend calls you up and asks you out for dinner and drinks in order to help you relax and relieve some of the stress the week has piled on. In this case, while your friend is not directly dealing with your work stress, he or she is still helping to decrease your level of distress. Emotional support from family and spouses is defined and utilized in the same manner as friend support, except the social support received is from a family member or a spouse. All three forms of social support can provide an individual with the necessary comfort he or she needs to effectively cope and get through a difficult life event (Schaefer et al.).

Personality and Psychological Distress

The personality traits of extraversion and neuroticism are linked to psychological distress, such that higher extraversion and lower neuroticism are tied to greater psychological distress (Pai & Carr, 2010; Rose et al., 2010). For example, Pai and Carr (2010) used data from the Changing Lives of Older Couples (CLOC) study to investigate the extent to which personality affects the development of psychological distress later in life after the death of a loved one. The results of the study indicated that extraversion acted as a protective buffer against the development of psychological distress, especially depression, particularly if the death was unexpected (Pai & Carr). Another study by Rose et al. addressed the role of personality on the development of psychological distress, particularly depressive and anxiety disorders, when chronic life stress was present. Participants in the study were 603 adolescents. Depression and anxiety were found to be associated with chronic life stress, with neuroticism at least partially accounting for these associations and the overall development of psychological distress. Furthermore, the study also found that lower levels of extraversion had a similar affect, especially in regards to anxiety. This study provides evidence for the importance of personality variables in explaining associations between personality and the development of psychological distress (Rose et al.).

A study by Ploubidis and Frangou (2011) examined to what extent neuroticism contributed to the development of psychological distress, particularly in relationship to an individual's tendency to select high-risk environments or situations when high levels of neuroticism were present. Data were drawn from the Health and Lifestyle Survey. Results of the study indicated that neuroticism accounted for a significant percent of the variance

in the environmental and individual psychological distress components. In other words, individuals with high levels of neuroticism tended to select situations that were more likely to lead to high levels of psychological distress (Ploubidis & Frangou, 2011).

Gale, Booth, Mottus, Kuh, and Deary (2013) examined the degree to which neuroticism and extraversion present during youth are linked to current emotional well-being in adulthood. Structural equation modeling was applied to data from 4583 individuals from the MRC National Survey of Health and Development. The effects of neuroticism and extraversion at ages 16 and 26 years on overall mental well-being at age 60-64 years were examined, particularly in relationship to the development of psychological distress (Gale, Booth, Mottus, Kuh, & Deary, 2013). The results of the study indicated that extraversion had direct positive effects on a person's emotional well-being, such that less psychological distress was found in individuals with high extraversion. The results also indicated that individuals with high levels of neuroticism had higher susceptibility to the development of psychological distress. As such, the study provides evidence for the notion that personality dispositions in youth may have enduring influence on an individual's emotional well-being and the development of psychological distress later in life (Gale et al.). However, while the above studies demonstrate a linkage between personality and psychological distress, very little is known about the specific mechanisms that contribute to these links.

Social Support and Psychological Distress

Research has documented that lower social support is associated with higher levels of psychological distress (Clark, 2005). A common explanation for the correlation found between social support and psychological distress is that social support predicts

individuals' abilities to positively cope (Clark, 2005). In other words, knowing that they as an individual are valued by others and have the support of others is an important psychological factor that allows them to better deal with the negative aspects of their lives and think more positively about their environment (Clark). Furthermore, Lepore (1992) conducted a longitudinal study that examined the relative and joint effects of perceived social support and social conflict on an individual's level of psychological distress in 228 college students. After analyzing the data, Lepore found that social conflict, particularly in regards to an individual's roommate, significantly predicted increases in psychological distress over time. This effect was found to be attenuated by higher levels of perceived social support from an individual's friends. Additionally, friend conflict was found to predict increases in psychological distress over time, with the effect being attenuated by higher levels of perceived social support from roommates (Lepore, 1992).

The importance of social support on emotional functioning was also evidenced by a 1981 study by Holahan and Moos who conducted a longitudinal study of social support and psychological distress. Holahan and Moos (1981) randomly sampled middle aged adults, 245 males and 248 females. These adults completed two surveys, which were administered 1 year apart, and examined the relationship between changed social support and an individual's overall level of psychological distress. Due to the nature of the study, initial maladjustment and initial levels of life change and social support were controlled for (Holahan & Moos, 1981). After running a multiple regression model for change, a negative relationship between social support and psychological distress was found. Additionally, the results supported the notion that decreases in social support amongst

family, spouses, and work environments were significantly related to increases in psychological maladjustment during the one year period between survey administration (Holahan & Moos). In other words, the less reported social support an individual had, the higher his or her level of reported psychological distress was.

Evidence supports that social support is an important factor in determining the overall level of psychological distress an individual experiences such that higher levels of social support tend to indicate lower levels of psychological distress and vice versa. Therefore, the absence of social support can be deemed as disadvantageous to impacted individuals, and as such, the proposed relationship is a very important one for continued further study. As mentioned, previous research denotes a linkage between personality and psychological distress, but little is known about the mechanisms that contribute to that linkage. Therefore, the presence or absence of social support is an important factor to study in order to further understand this linkage, and the presence or absence of psychological distress in general.

Interplay among Personality, Social Support, and Psychological Distress

Over the past couple of decades, research has sought to explore associations among personality, social support, and psychological distress. Oddone, Hybels, McQuoid, and Steffens, (2011), examined this relationship by looking at depression in older adults in an attempt to identify the personality trait and social support dimension most closely associated with depression, which is a common form of psychological distress, and determine whether the relationship between personality and depression varies by level of social support. They used a cross-sectional analysis within a longitudinal study to look at 108 older individuals diagnosed with major depression and

compared them to 103 individuals without psychological distress (Oddone, Hybels, McQuoid, & Steffens, 2011). Montgomery Asberg Depression Rating Scale Analyses (MADRS) were used to assess for depression and the Big 5 Model of Personality was used to assess personality. Analyses of the results indicated that individuals with depression and the comparison group did differ on personality domains and social support dimensions (Oddone et al.). Personality itself was not found to significantly predict depression status. However, an individual's social support was found to be correlated with his or her scores on the MADRS such that the presence of social support helped to reduce the presence of depression. Also, the presence of neuroticism was found to vary by level of subjective social support. In other words, this effect was lessened when higher levels of neuroticism were present because subjective social support was reported as lower and less present (Oddone et al.). As such, the study helped to confirm that personality and social support do affect a person's level of psychological distress.

Duckit (1984) also sought to examine the relationship between psychological distress, social support, and personality. The study set out to examine the influence of personality factors on the relationship between social support and symptoms of psychological distress. The study utilized a student sample of 139 individuals. The results of regression analyses indicated a relationship between the presence of social support and the presence of psychological distress (Duckit, 1984). In particular, extraversion showed a significant interaction with social support in the prediction of psychological distress, such that it tended to decrease the likelihood of distress due to an increase in the presence of social support.

Bolger and Eckenrode (1991) examined the inter-relationship between social support, personality, and psychological distress, specifically in the form of anxiety, which is a common form of psychological distress, during a major stressful event. Bolger and Eckenrode noted that while previous research established that social support acts as a buffer against the effects of stress on developing psychological distress, these buffering effects were likely a reflection of an individual's personality prior to the development of psychological distress. Fifty-six medical students were asked to rate their personality, specifically extraversion and neuroticism, and their perceived level of social support, five weeks before taking a medical school entrance examination. They were also asked to rate their anxiety for 35 days surrounding the actual examination. The results of the study indicated that when controlling for personality and prior anxiety, social support still acted as a buffer against increases in anxiety related psychological distress, particularly for the students who rated themselves high in extraversion (Bolger & Eckenrode, 1991).

Personality, social support, and psychological distress were also studied by Shu-Chuan and Ying-Ying in 2014. The purpose of the study was to further examine the interactive effects of personality, social support, and psychological distress in the form of depression. The study involved 1861 individuals from 31 different hemodialysis centers. Social support, personality, and psychological distress (specifically depression) were measured using the Big-Five Personality Inventory Scale, the Beck Depression Inventory, and the Social Provision Scale (Shu-Chuan & Ying-Ying, 2014). A hierarchical linear model was used. A multivariate regression analysis was run, which indicated a main effect for social support. More specifically, it was found that neuroticism was positively related to depression (Shu-Chuan & Ying-Ying). Additionally, an interaction between

neuroticism and social support was found that significantly predicted depression. Therefore, the results of the studied showed an association between perceived social support and depression that appeared to be dependent upon personality (Shu-Chuan & Ying-Ying). These results lend further support to the importance of the relationship, since it may prove to be useful in tailoring treatment and predicting outcomes that could help to identify individuals at risk of experiencing psychological distress who could benefit from using social support as a positive intervention. At this point, research has not yet looked at social support as a potential mechanism that links personality and psychological distress. Therefore, the current research attempts to do so by examining the potential mediational role social support plays in the relationship between personality (specifically extraversion and neuroticism) and psychological distress.

Hypotheses

Hypothesis #1: Higher levels of extraversion would be associated with lower levels of psychological distress.

Hypothesis #2: Higher levels of neuroticism will be associated with higher levels of psychological distress

Hypothesis #3: Social support would mediate the relationship between extraversion and psychological distress, such that higher levels of extraversion would equate to lower levels of psychological distress when social support is present.

Hypothesis #4: Social support would mediate the relationship between neuroticism and psychological distress, such that lower levels of neuroticism would equate to lower levels of psychological distress when social support is present.

CHAPTER 3

METHODS

The current study utilized data from The National Survey of Midlife Development in the United States (MIDUS). MIDUS is a collaborative dataset that investigates patterns, predictors, and consequences of midlife development in the areas of physical health, social responsibility, and psychological well-being (Brim et al., 2010). MIDUS was collected in four parts, but only the first wave of data (MIDUS 1) was used for this study. MIDUS 1 data were collected via questionnaire and phone interview from a total of 7,108 participants (Brim et al.). The baseline sample was comprised of individuals from four subsamples: a) a national RDD (random digit dialing) sample (n = 3,487); b) oversamples from five metropolitan areas in the U.S. (n = 757); c) siblings of individuals from the RDD sample (n = 950); and d) a national RDD sample of twin pairs (n = 1,914) (Brim et al.). All eligible participants were non-institutionalized, English-speaking adults in the coterminous United States, aged 25 to 74 years. All of the data from the above samples was collected primarily from 1995-1996 (Brim et al.).

The main RDD sample was selected from working telephone banks. A list of people between 25-74 years old was generated for each household, and respondents were randomly selected (Brim et al.). In order to advance targeted research agendas, oversampling of older men and metropolitan areas was achieved by varying the probability of carrying out the interview as a joint function of the age and sex of the

randomly selected respondent (Brim et al.). No other person in the household was selected if the selected respondent did not complete the interview. Of the RDD respondents who reported having one or more siblings, 529 people were randomly selected if they had the same biological parents. Complete telephone interviews were obtained for 950 of these individuals, some of whom came from the same family (Brim et al.).

All respondents were invited to participate in a phone interview of approximately 30 minutes in length and to complete two self-administered questionnaires (SAQs), each of approximately 45 pages in length. In addition, the twin subsample was administered a short screening survey to assess zygosity and other twin-specific information (Brim et al., 2010).

Out of the 7,108 original participants, the current sample consisted of 6,265 participants for neuroticism, 6,271 participants for extraversion, 6,299 participants for negative affect, and 6,244 participants for friend support (Brim et al.). Out of the sample, approximately 47.7% were male, 51% were female, and 1.1% did not report their gender. The sample ranged in age from 25 to 74 years old ($Mean = 48$; $SD = 12.9$). In addition, the ethnic breakdown of the sample was approximately 88% Caucasian, 5% Black and/or African American, .5% Native American or Aleutian Islander/Eskimo, .9% Asian or Pacific Islander, 1.8% other, .06% multiracial, and 2.3% did not report their ethnicity (Brim et al.). Finally, approximately 11.1% of the sample had a level of education that included some grade school to GED education, 27.5% graduate high school, and 61.36% had at least some college education.

Measures

Personality – Neuroticism and Extraversion

Neuroticism and extraversion were assessed using the Midlife Development Inventory Big Five Personality Scale (Brim et.al. 2009). Participants reported on a 4-point scale from 1 (a lot) to 4 (not at all) on how well each of the personality items described them, and items were averaged together to form two overall personality scores. Extraversion and neuroticism were assessed as part of a larger personality inventory with a total of 30 questions (Brim et al.) Out of the 30 questions, five specifically assessed extraversion and four specifically assessed neuroticism. The scales for extraversion and neuroticism were constructed by calculating the means across each item, and items were reverse-scored such that higher scores indicated higher levels of each personality trait. Extraversion-items included: outgoing, friendly, lively, active, talkative ($\alpha = .78$) (Brim et al.). Neuroticism-items included: moody, worrying, nervous, and calm. ($\alpha = .74$).

Social Support

Social support was assessed using a global composite score consisting of three scales that assessed different types of emotional social support. The three different scales tapped into friend support, family support, and spouse and partner support, which have been found to be both common and effective forms of emotional social support (Schaefer, Coyne, & Lazars, 1981). Friend support was measured using the Midlife Developmental Inventory Friend Support Scale (Brim et al.) Participants reported on a 4-point scale from 1 (a lot) to 4 (not a lot) regarding how much they thought their friends were a source of social support. Four items total were asked under this scale. The questions included, “How much do your friends really care about you?”, “How much can

you rely on them for help if you have a serious problem?”, “How much do they understand the way you feel about things?”, and “How much can you open up to them if you need to talk about your worries?” (Brim et al. 2010). The scale for friend support was constructed by calculating the mean score of the four items. Items were recorded and scored so that higher scores on a question reflected higher friend support. The scale was constructed by calculating the sum of reverse coded values for the items (Brim et al.). The Cronbach Alpha calculated was .88 for this scale, which demonstrates overall high internal validity.

Family support was assessed using the Midlife Developmental Inventory Family Support Scale. Participants reported on a 4-point scale from 1 (a lot) to 4 (not a lot) regarding how much they thought their family were a source of social support. Four items total were asked under this scale. The questions included, “Not including your spouse or partner, how much do members of your family really care about you?” “How much can you rely on them for help if you have a serious problem?”, “How much do they understand they way you feel about things?” and “How much can you open up to them if you need to talk about your worries?” (Brim et al., 2010). The scale for family support was constructed by calculating the mean score of the four items. Items were recorded and scored so that higher scores on a question reflected higher overall family support. Therefore, the scale was constructed by calculating the sum of reverse coded values for the items (Brim et al.). The Cronbach’s alpha calculated was .82 for this scale, which demonstrates overall high internal validity.

Spouse and partner support was assessed using the Midlife Developmental Inventory Marital Empathy Scale. Participants reported on a 4-point scale from 1 (a lot)

to 4 (not at all) regarding how much they thought their spouse or partner was a source of social support. Six items total were asked under this scale. The questions included, “How much does your spouse or partner really care about you?” “How much can you rely on him for her for help if you have a serious problem?”, “How much does he or she understand the way you feel about things?” “How much does he or she appreciate you” “How much can you open up to them if you need to talk about your worries?” and “How much can you relax and be yourself around him or her” (Brim et al., 2010). The scale for spouse and partner support was constructed by calculating the mean score of the six items. Items were recorded and scored so that higher scores on a question reflected higher overall spouse or partner support. Therefore, the scale was constructed by calculating the sum of reverse coded values for the items (Brim et al.). The Cronbach’s alpha calculated was .86 for this scale which demonstrates overall high internal validity.

Psychological Distress

Psychological distress was assessed using the Midlife Developmental Inventory Negative Affect Scale (Brim et al., 2010) Participants reported on a 4-point scale from 1 (all the time) to 4 (none of the time) regarding how much they felt a particular way during the past 30 days. Participants answered 6 self-reported questions that tapped into their overall level of negative affect (Brim et al.). The six items that were asked assessed under this scale were: sadness, nervousness, restlessness, hopelessness, effort, and worthlessness. The scale for negative affect was constructed by calculating the mean score across the six items. Items were recorded and scored so that higher scores on a question reflected higher levels of negative affect. Therefore, the scale was constructed by calculating the sum of reverse coded values for the items (Brim et al.). The

Cronbach's alpha was .87 for this scale, which demonstrates overall high internal validity.

Analyses

First, correlation analyses were conducted in SPSS to determine the extent to which each study variable was associated with one another. The results from these correlation analyses are presented in Table 2. As reflected in Table 2, extraversion and neuroticism were negatively correlated with one another, such that higher levels of extraversion were associated with lower levels of neuroticism. In addition, extraversion was positively correlated with social support and negatively correlated with psychological distress, and neuroticism was negatively correlated with social support and positively correlated with psychological distress.

The proposed relationship between personality and psychological distress is likely explained with the inclusion of a third variable, which is called a mediator variable. This type of relationship is often referred to as a mediation, which attempts to explain why a relationship exists between an independent variable and a dependent variable via the mediator variable. In this case, the independent variable being explored is an individual's personality (i.e. their reported score on scales of extraversion and neuroticism) and the dependent variable being explored is an individual's perceived level of psychological distress (i.e. their self-reported level of negative affect). This relationship was explored with social support (the composite score of friend, family, and spouse support) as the proposed mediator variable. The proposed mediation was analyzed in SPSS by first looking at the relationship between extraversion and psychological distress, with social support acting as the mediator, and then by looking at the relationship between

neuroticism and psychological distress, with social support once again acting as the mediator.

Mediations are tested using a step-by-step process of regressions in SPSS in order to thoroughly test the association of each variable with the other variables. The current analyses were no exception. Step a looked at the effect of extraversion (independent variable) on psychological distress (dependent variable). Step b tested the effect of extraversion (independent variable) on social support (mediator), and test c tested the effect of social support (mediator) on psychological distress (dependent variable). Step d then looked at the effect of both extraversion (independent variable) and social support (mediator) on psychological distress (dependent variable). A visualization of this pathway is presented in Figure 1. A similar step-by-step path was used to analyze neuroticism, social support, and psychological distress. Step e looked at the effect of neuroticism (independent variable) on psychological distress (dependent variable). Step f tested the effect of neuroticism (independent variable) on social support (mediator), and test g tested the effect of social support (mediator) on psychological distress (dependent variable). Step h then looked at the effect of both neuroticism (independent variable) and social support (mediator) on psychological distress (dependent variable). An initial visualization of this pathway is presented in Figure 2.

CHAPTER 4

RESULTS

Table 1 contains descriptive statistics for extraversion, neuroticism, social support, and psychological distress. Specifically, the mean, standard deviation, variance, and skewness were calculated for each variable. Descriptive statistics for gender and age will be used as covariates throughout the mediation analyses. Within the study, 6584 individuals reported their age, and 7108 reported their gender. Out of the sample, approximately 47.7% ($N = 3482$) were male and 51% ($N = 3625$) were female. The sample ranged in age from 25 to 74 years old ($Mean = 48$; $SD = 12.9$).

Correlations were then calculated for each variable, as presented in Table 2. Results for the correlation analyses revealed that extraversion and neuroticism were negatively correlated ($r = -.16$, $p < .01$), such that higher levels of extraversion were associated with lower levels of neuroticism. In addition, extraversion was positively correlated with social support ($r = .31$, $p < .01$) and negatively correlated with psychological distress ($r = -.21$, $p < .01$). Neuroticism was negatively correlated with social support ($r = -.13$, $p < .01$) and negatively correlated with psychological distress ($r = -.55$, $p < .01$). Social support was also negatively correlated with psychological distress ($r = -.18$, $p < .01$). Additionally, age was positively correlated with neuroticism and psychological distress and negatively correlated with extraversion and psychological distress. Furthermore, Spearman's rho was used to calculate correlations for gender.

Gender was significantly correlated to extraversion, neuroticism, social support, and psychological distress. In summary, the correlation analyses demonstrated significant associations among main variables extraversion, neuroticism, social support, and psychological distress.

Next, the Baron and Kenny (1986) mediation model was used to determine whether social support mediated the associations between extraversion and psychological distress and between neuroticism and psychological distress. (Gaylord, Taylor, & Campbell, 2009; Kullik & Peterman, 2012). According to Baron and Kenny (1986), mediation exists when (a) the independent variable is significantly correlated to the dependent variable; (b) the independent variable is significantly related to the mediator; (c) the mediator is significantly related to the dependent variable, controlling for the independent variable; and (d) the relationship between the independent variable and the dependent variable decreases, controlling for the mediator (Kullik & Peterman).

Mediation was tested using a series of step-by-step regression analyses to investigate the hypothesis that social support mediates the association between personality (extraversion and neuroticism) and psychological distress, controlling for age and gender in all analyses. Extraversion was tested first. Path a tested the effect of the independent variable (extraversion) on the dependent variable (psychological distress). The parameter estimates for this regression analyses can be found in Table 3. With regard to extraversion, $b = -.24$, $SE = .01$, $p < .01$. As such extraversion did significantly affect psychological stress. In other words, in holding constant gender and age, as an individual's level of extraversion increases, he or she was less likely to develop psychological distress. Overall, these results demonstrate a linkage between the

independent variable extraversion and the dependent variable psychological distress, which provides strong evidence in support of hypothesis one.

Path b tested the effect of the independent variable (extraversion) on the mediator variable (social support). Social support was run as the dependent variable. The parameter estimates of the regression for this analysis can be found in Table 4. With regard to extraversion, $b = .26$, $SE = .01$, $p < .01$. As such, in holding constant the covariates of gender and age, individuals who scored high in neuroticism were more likely to have higher levels of social support. These results indicated that there is a significant effect between the independent variable of extraversion and the mediator variable of social support, which demonstrates that the second criteria for Baron and Kenny's mediation model was met (the independent variable needs to be significantly related to the mediator variable).

Path c was conducted to test the effect of the mediator variable social support on the dependent variable psychological distress. In this case, psychological distress was run as the dependent variable. The parameter estimates of the regression for this analysis can be found in Table 5. With regard to social support, $b = -.41$, $SE = .02$, $p < .01$. As such, these results indicated that social support helped to significantly effect psychological distress when holding constant the covariates of age and gender. In other words, individuals with social support were less likely to develop psychological distress.

A final regression analysis was then conducted for extraversion. In this case, path d was run to test the effect of both extraversion and social support on psychological distress. Both social support and extraversion were run as independent variables, and psychological distress was run as the dependent variable. The parameter estimates of the

regression analyses for path d can be found in Table 6. In regards to social support, $b = -.36$, $SE = .02$, $p < .01$, and in regards to extraversion, $b = -.14$, $SE = .02$, $p < .01$. These results provide support for part c of Baron and Kenny's mediation model which states that in order for mediation to be present, the mediator variable needs to be significantly related to the dependent variable while controlling for the independent variable. In this case, social support did significantly affect psychological distress while controlling for extraversion. However, despite support for Baron and Kenny's first three mediation steps, the last step of their model was not supported. In order for a mediational relationship to be present between the proposed variables, their model asserts that the relationship of the independent variable with the dependent variable needs to decrease significantly when the mediator variable is introduced as a control. In this case, when social support was introduced, the relationship between extraversion and psychological distress was still significant, which indicates that social support did not significantly mediate the relationship between extraversion and psychological distress. As such, the results did not indicate strong support in favor of hypothesis three. However, due to the significance of all three variables, we can assert that while no mediation appears to be present, social support and extraversion both help to significantly explain the variance in psychological distress. Figure 3 illustrates a figural representation of paths a through d.

After testing the relationship between extraversion, social support, and psychological distress, the proposed mediational relationship between neuroticism, social support, and psychological distress was also tested using a similar series of step by step multiple regression analyses in SPSS. Similar to extraversion, path e tested the effect of the neuroticism (now the independent variable) on the dependent variable psychological

distress. The parameter estimates for this regression can be found in Table 7. In regards to neuroticism, $b = .51$, $SE = .01$, $p < .01$. Neuroticism did significantly effect psychological distress such that, in holding constant the two covariates, as an individual's level of reported neuroticism increases, he or she is more likely to develop psychological distress. These results demonstrate a linkage between the independent variable neuroticism and the dependent variable psychological distress, which provides strong evidence in support of hypothesis two.

Path f tested the effect of the independent variable (neuroticism) on the mediator variable (social support). In this case, social support was run as the dependent variable. The parameter estimates of the regression for this analysis can be found in Table 8. In regards to neuroticism, $b = -.16$, $SE = .01$, $p < .01$. As such, in holding constant the covariates of gender and age, neuroticism did help to significantly effect social support such that as an individual's level of neuroticism decreased, his or her overall level of social support tended to increase. These results indicated that there is an association between the independent variable of neuroticism and the mediator variable of social support, which demonstrates that the second criteria for Baron and Kenny's mediation model was met (the independent variable needs to be significantly related to the mediator variable).

Path g was then run to test the effect of the mediator variable social support on the dependent variable psychological distress, with psychological distress being run as the dependent variable. The parameter estimates of the regression for this analysis can be found in Table 5. In regards to social support, $b = -.41$, $SE = .02$, $p < .01$. These results indicated that social support did significantly affect psychological distress when holding

constant the covariates of age and gender, which suggests that individuals with social support were less likely to develop psychological distress.

The final regression analyses run, path h, tested the effect of both neuroticism and social support on psychological distress. Neuroticism and social support were run as independent variables (along with the covariates of gender and age), and psychological distress was run as the dependent variable. The parameter estimates of the regression can be found in table 9. In regards to social support, $b = -.27$, $SE = .01$, $p < .01$, and in regards to neuroticism, $b = .46$, $SE = .01$, $p < .01$. Similar to extraversion, these results provided support for part c of Baron and Kenny's mediation model. In this case, social support did significantly effect psychological distress while controlling for neuroticism. However, despite support for Baron and Kenny's first three mediation steps, the last step of their model was again not supported. As with extraversion, when social support was introduced, the relationship between neuroticism and psychological distress was still significant, which indicated that social support does not significantly mediate the relationship between neuroticism and psychological distress. As such, the results did not indicate strong support in favor of hypothesis four. However, due to the significance of all three variables, we can assert that while no mediation appeared to be present, social support and neuroticism both helped to significantly explain the variance in psychological distress. Figure 4 shows a figural representation of paths e though h.

Overall, the findings of the present study suggest that although extraversion, neuroticism, and social support each separately predicted psychological distress, there was not statistically significant support for a mediational relationship between the variables. More specifically, social support did not mediate the relationship between extraversion and psychological distress or neuroticism and psychological distress. However, while no mediation was present, the results also indicated that each variable was independently related to each other and the dependent variable. More specifically, extraversion, neuroticism, and social support each independently predicted psychological distress. As such, these independent relationships indicated an overall strong relationship between each variable, just not in the form of a mediation.

CHAPTER 5

DISCUSSION

The purpose of this study was to examine the interplay between personality, social support, and psychological distress. More specifically, the study assessed the extent to which social support mediates the association between neuroticism and psychological distress and between extraversion and psychological distress. The study tested four hypotheses: (1) Higher levels of extraversion would be associated with lower levels of psychological distress; (2) Higher levels of neuroticism would be associated with higher levels of psychological distress; (3) Social support would mediate the relationship between extraversion and psychological distress, such that higher levels of extraversion would equate to lower levels of psychological distress when social support is present; and (4) Social support would mediate the relationship between neuroticism and psychological distress, such that lower levels of neuroticism would equate to lower levels of psychological distress when social support was present.

Correlation analyses were conducted to determine the extent to which each variable was associated with one another. As expected, extraversion and neuroticism were negatively correlated with one another. Extraversion was also positively correlated with social support and negatively correlated with psychological distress, and neuroticism was negatively correlated with social support and positively correlated with psychological distress. These correlations are consistent with prior research that has

examined associations among these variables. For example, a study conducted by Pai and Carr (2010) indicated that extraversion acted as a protective buffer against the development of psychological distress, especially depression. Another study by Rose et al. (2010) found the opposite to be true for neuroticism. In other words, the results of their study indicated that neuroticism at least partially accounted for the overall development of psychological distress. The study also found that lower levels of extraversion had a similar affect. Given that psychological distress is common and associated with poor functioning, these correlations may prove to be useful in clinical settings by improving our understanding regarding the development of psychological distress in distressed individuals.

Next, mediation analyses were conducted to test the hypotheses that social support mediates the association between extraversion and psychological distress and between neuroticism and psychological distress. The findings of the current study did not provide support for the proposed hypotheses. Instead, the results suggested that extraversion, neuroticism, and social support are each independent predictors of psychological distress. This may suggest that psychological distress is a rather multifaceted dimension with a multitude of different contributing predictors, including the three noted variables. In first looking at the relationship between extraversion and psychological distress, an individual's levels of reported extraversion appear to be associated with whether an individual is more or less likely to develop psychological distress. More specifically, as an individual's levels of extraversion increases he or she appears to be less likely to develop psychological distress. Extraversion is defined as assertiveness, talkativeness, and sociability, with higher levels being associated with

lower levels of anxiety, greater positive affect and life satisfaction, and more positive objective life events (Costa & McCrae, 1980; Magnus et al., 1993). According to Costa and McCrae, 1980, these traits act as a positive buffer against the development of psychological distress, which is a possible explanation for the current results. These results are also consistent with other prior research. For example, Gale, Booth, Mottus, Kuh, and Deary (2013) examined the degree to which extraversion present during youth is linked to current emotional well-being in adulthood. The results of the study indicated that extraversion had direct positive effects on a person's emotional well-being, such that less psychological distress was found in individuals with high extraversion. As noted, individuals high in this personality trait are less likely to develop psychological distress. From a clinical perspective, these results provide important information in regards to the pathology of psychological distress, which is important because according to the National Institute of Mental Health, 2012, the more we are able to understand the pathology of distress, the better able we are to help individuals who are negatively affected by it. In other words, as our understanding of the pathology of psychological distress continues to increase, so may the overall efficaciousness of the interventions and treatments used to combat it.

Social support was found to also be predictive of psychological distress such that higher levels of social support were associated with lower levels of psychological distress. These findings are again consistent with the findings of prior research. For example, Lepore (1992) conducted a longitudinal study that examined the relative and joint effects of perceived social support and social conflict on an individual's level of psychological distress in 228 college students. Results of the study indicated that friend

conflict (operationalized as lack of current friend support) was found to predict increases in psychological distress over time, with the effect being attenuated by higher levels of perceived social support from roommates. The importance of social support on emotional functioning was also evidenced by a 1981 study by Holahan and Moos who conducted a longitudinal study of social support and psychological distress. A series of regression analyses indicated a negative relationship between social support and psychological distress. Additionally, the results supported the notion that decreases in social support amongst family, spouses, and work environments were significantly related to increases in psychological distress.

As mentioned, due to the detrimental effects that psychological distress can have on an individual, understanding its correlates and what contributes to its existence is important. While a mediation relationship was not supported, support was found for the overall associations of these variables. These associations may prove beneficial in clinical settings. For example, due to the noted associations between extraversion and psychological distress and social support and psychological distress, increasing an individual's level of social support in therapy, especially when that individual has extraverted traits, may help to relieve symptoms of psychological distress. The American Psychological Association (2015) asserts that many of the mental and behavioral health problems associated with psychological distress are preventable, or at least treatable, when proper coping and stress management techniques are applied, or proper psychological help is utilized. At this point, based on the observed relationships, we may be able to assert that social support has potentially beneficial therapeutic properties that can help individuals lower overall levels of distress, particularly if they display more

extraverted qualities. In other words, the implementation of social support may be a useful coping and stress management technique for individuals presenting clinically with psychological distress. This may then in turn have long-term positive effects on their overall level of psychological well-being.

Neuroticism was also found to be predictive of psychological distress. Unlike extraversion, which appears to have positive effects on the development (or lack thereof) of psychological distress, neuroticism appears to affect the pathology and development of distress more negatively. More specifically, as an individual's level of neuroticism increases, he or she appears to be more likely to develop psychological distress. Neuroticism is defined as fear, anxiety, moodiness, worrying, and loneliness, with higher levels being associated with greater self-consciousness, frustration, and reactivity to stress and lower emotional stability (Eysenck 1967; Matthews & Deary 1998; Norris, Larsen, & Cacioppo, 2007; Thompson, 2008). Neuroticism also precedes many common mental disorders such as depression, phobia, panic disorder, other anxiety disorders, and substance use disorder (Hettema, Neale, Myers, Prescott, & Kendler, 2006; Ormel et al., 2013). With that said, the current association is not surprising, and is supported by additional prior research. For example, a study by Ploubidis and Frangou (2011), examined to what extent neuroticism contributed to the development of psychological distress. Results of the study indicated that neuroticism accounted for a significant percent of the variance in the environmental and individual psychological distress components. In other words, individuals with high levels of neuroticism tended to select situations that were more likely to lead to high levels of psychological distress.

Similar to extraversion, while no mediation was present in the current study, the general associations found between neuroticism and psychological distress and social support and psychological distress may still prove to be useful in clinical settings. For example, while social support may be more difficult to establish with someone who displays high levels of neuroticism, this does not mean that it cannot be used as a positive therapeutic tool and potential coping and stress management mechanism. In knowing that individuals with higher levels of neuroticism have a more difficult time obtaining social support, we can assert that these individuals may require interventions within the domain of social support first when presenting for treatment related to psychological distress. For example, it may be necessary to provide education and role playing surrounding social intelligence prior to suggesting its utilization as a coping mechanisms. However, once this is done, improving an individual's level of social support while in therapy, despite higher levels of neuroticism, may prove to have positive long term therapeutic and personal effects, ideally with the reduction of levels of psychological distress.

As stated, psychological distress is relatively common and has been shown to be associated with poor functioning. Therefore, the more we know about its correlates, the more we may be able to successfully treat it in a clinical setting. While the current study failed to establish a relationship between personality, social support, and psychological distress in the form of a mediation, it still established that the three variables are indeed predictive of psychological distress. In knowing this, our understanding of the pathology of psychological distress is increased, and it can be suggested that social support may be a useful target intervention in the reduction of psychological distress.

Limitations

The findings of this study must be considered in light of certain limitations. First, the sample was predominately Caucasian (88%). Thus, caution should be taken in considering the extent to which the results generalize across ethnic groups. A second potential limitation was that psychological distress tapped a broad number of symptoms within the present study, including sadness, nervousness, restlessness, hopelessness, effort and worthlessness were measured. Thus, it may be difficult to generalize findings from the current study to clinical patients with specific diagnoses. Nevertheless, the strength of this measure of psychological distress has the potential to generalize to a wide number of different psychological disorders. Third, the self-report nature of the data is also a potential limitation. Self-report data may be biased by the current perceptions of the respondents, and therefore, may not be entirely objective in nature. Fourth, this is a cross-sectional study, which cannot provide information about the temporal ordering of personality, social support, and psychological distress.

Future Research Directions

This study sheds light on several important future directions. First, a replication of this study should be conducted using a clinical sample in order to determine whether findings generalize to clinical populations, or are specific to community populations. Second, future research should use specific measures of psychological disorders (e.g., depression and anxiety) to test whether the findings in this study are specific to general measures of psychological distress, or are generalizable to psychological disorders. Third, future research could consider other potential mediators of the associations between personality and psychological distress, such as coping styles, level of stress management,

perceived self-image, and level of perceived control in life. Fourth, previous research demonstrating a relationship amongst the variables via moderation was significant. As such, perhaps future research may consider a similar model using moderation instead of mediation to better understand the relationship between personality, social support, and psychological distress. Finally, due to the correlations noted between the main variables and the covariates (gender and age), future studies could further consider the role gender and age may play in the development of personality, social support, and psychological distress.

In Conclusion

Psychological distress is common among adults in the United States, affecting well over a million individuals in the United States alone each year. While psychological distress ranges from mild to severe, even in its mildest form, it has the potential to influence all aspects of an individual's daily life, including but certainly not limited to, his or her performance at work, overall level of stress, and overall level of life satisfaction (Ridner, 2004; Williams, 2013). It is for these reasons that continuing to study the constructs that contribute to the development of psychological distress, and continuing to denote ways to help people who have developed forms of psychological distress is important. New findings in these areas may have positive clinical implications. A greater awareness of the association between personality, social support, and psychological distress may serve to help those experiencing various forms of psychological distress find balance and stability by increasing the overall effectiveness of the treatments present.

APPENDIX A

TABLES

Table 1

Descriptive statistics for Extraversion, Neuroticism, Social Support, and Psychological Distress

	<i>N</i>	<i>M</i>	<i>SD</i>	Skewness
Extraversion	6271	3.19	.56	-.45
Neuroticism	6165	2.24	.66	.28
Negative Affect	6299	1.54	.63	1.87
Social Support	6268	3.39	.48	-1.00

Note: *N* = number for participants for each variable, *M* = mean for each variable, *SD* = standard deviation for each variable.

Table 2

Inter-Correlations among Extraversion, Neuroticism, Social Support, and Psychological Distress

	Extraversion	Neuroticism	Social Support	Psychological Distress
Extraversion	1.00			
Neuroticism	-.16*	1.00		
Social Support	.31*	-.13*	1.00	
Psychological Distress	-.21*	-.55*	-.18*	1.00

Note. * = significant p-value $\leq .01$ (2-tailed) (rounded to the nearest hundredth).

Table 3

Testing Mediation Path a: Effect of Extraversion on Psychological Distress

Model	B	Std. Error	Beta	T	Sig.
Constant	-7.72	1.16		-6.69	.00*
Age	-.01	.00	.10	8.51	.00*
Gender	.13	.02	.10	8.22	.00*
Extraversion	-.26	.01	-.21	-17.19	.00*

Note: Dependent variable: psychological distress.

* = p-value $\leq .05$ (2-tailed) (rounded to the nearest hundredth).

Extraversion is significantly related to psychological distress.

Table 4

Testing Mediation Path b: Effect of Extraversion on Social Support

Model	B	Std. Error	Beta	T	Sig.
Constant	8.57	.87		9.88	.00*
Age	-.00	.00	-.08	-7.07	.00*
Gender	.07	.01	.08	6.46	.00*
Extraversion	.26	.01	.31	25.54	.00*

Note: Dependent variable: social support.

* = p-value \leq .05 (2-tailed) (rounded to the nearest hundredth).

Extraversion is significantly related to social support.

Table 5

Testing Mediation Path c and g: Effect of Social Support on Psychological Distress

Model	B	Std. Error	Beta	t	Sig.
Constant	-4.41	1.12		-3.93	.00*
Age	-.00	.00	.08	6.39	.00*
Gender	-.15	.02	.12	9.84	.00*
Social Support	-.41	.02	-.32	-26.63	.00*

Note: Dependent variable: psychological distress.

* = p-value \leq .05 (2-tailed) (rounded to the nearest hundredth).

Social support is significantly related to psychological distress.

Table 6

Testing Mediation Path d: Effect of Extraversion and Social Support on Psychological Distress

Model	B	Std. Error	Beta	t	Sig.
Constant	-4.62	1.12		-4.14	.00*
Age	.00	.00	.08	6.85	.00*
Gender	.15	.02	.12	10.14	.00*
Extraversion	-.36	.02	-.28	-22.35	.00*
Social Support	-.14	.01	-.13	-10.32	.00*

Note: Dependent variable: psychological distress.

* = p-value \leq .05 (2-tailed) (rounded to the nearest hundredth).

The regression analysis does not support the mediation of social support between extraversion and psychological distress. However, social support and extraversion both help to explain the variance in psychological distress.

Table 7

Testing Mediation Path e: Effect of Neuroticism on Psychological Distress

Model	B	Std. Error	Beta	T	Sig.
Constant	-2.09	1.00		-2.08	.04*
Age	.00	.00	.03	2.42	.02*
Gender	.04	.01	.03	2.90	.04*
Neuroticism	.51	.01	.54	50.13	.00*

Note: Dependent variable: psychological distress.

* = p-value \leq .05 (2-tailed) (rounded to the nearest hundredth).

Neuroticism is significantly related to psychological distress.

Table 8

Testing Mediation Path f: Effect of Neuroticism on Social Support

Model	B	Std. Error	Beta	T	Sig.
Constant	7.18	.89		-8.01	.00*
Age	-.00	.00	-.05	-4.01	.00*
Gender	.12	.01	.12	9.77	.00*
Neuroticism	-.16	.01	-.23	-18.01	.00*

Note: Dependent variable: social support.

* = p-value \leq .05 (2-tailed) (rounded to the nearest hundredth).

Neuroticism is significantly related to social support.

Table 9

Testing Mediation Path h: Effect of Neuroticism and Social Support on Psychological Distress

Model	B	Std. Error	Beta	T	Sig.
Constant	-.19	.98		-.19	.84
Age	.00	.001-	.02	1.57	.12
Gender	.07	.01	.06	5.22	.00*
Neuroticism	.46	.01	.49	45.70	.00*
Social Support	-.27	.01	-.21	-19.80	.00*

Note: Dependent variable: psychological distress.

* = p-value \leq .05 (2-tailed) (rounded to the nearest hundredth).

The regression analysis does not support the mediation of social support between neuroticism and psychological distress. However, social support and extraversion both help to explain the variance in psychological distress.

APPENDIX B

FIGURES

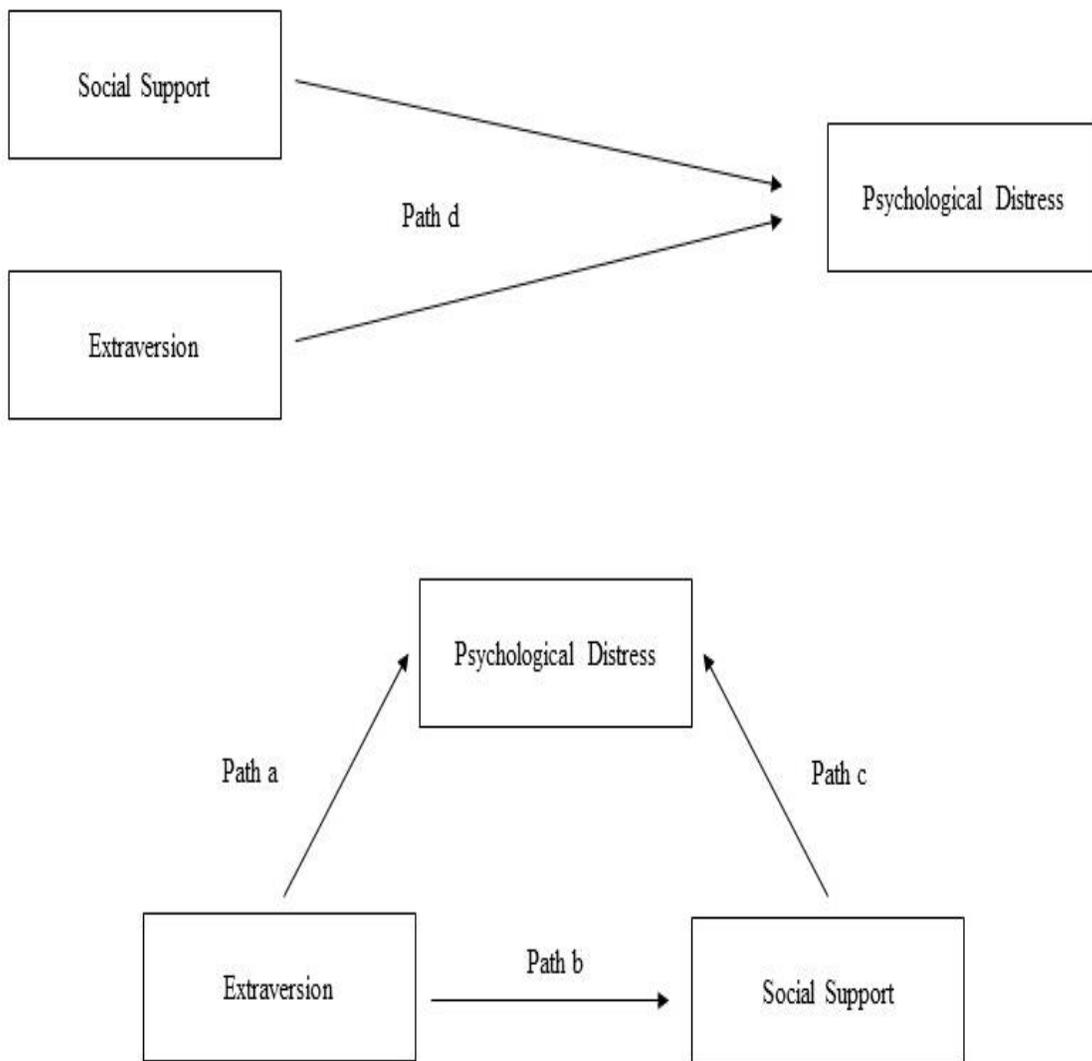


Figure 1. Conceptual mediation model of the effect of extraversion on psychological distress with the mediation of social support.

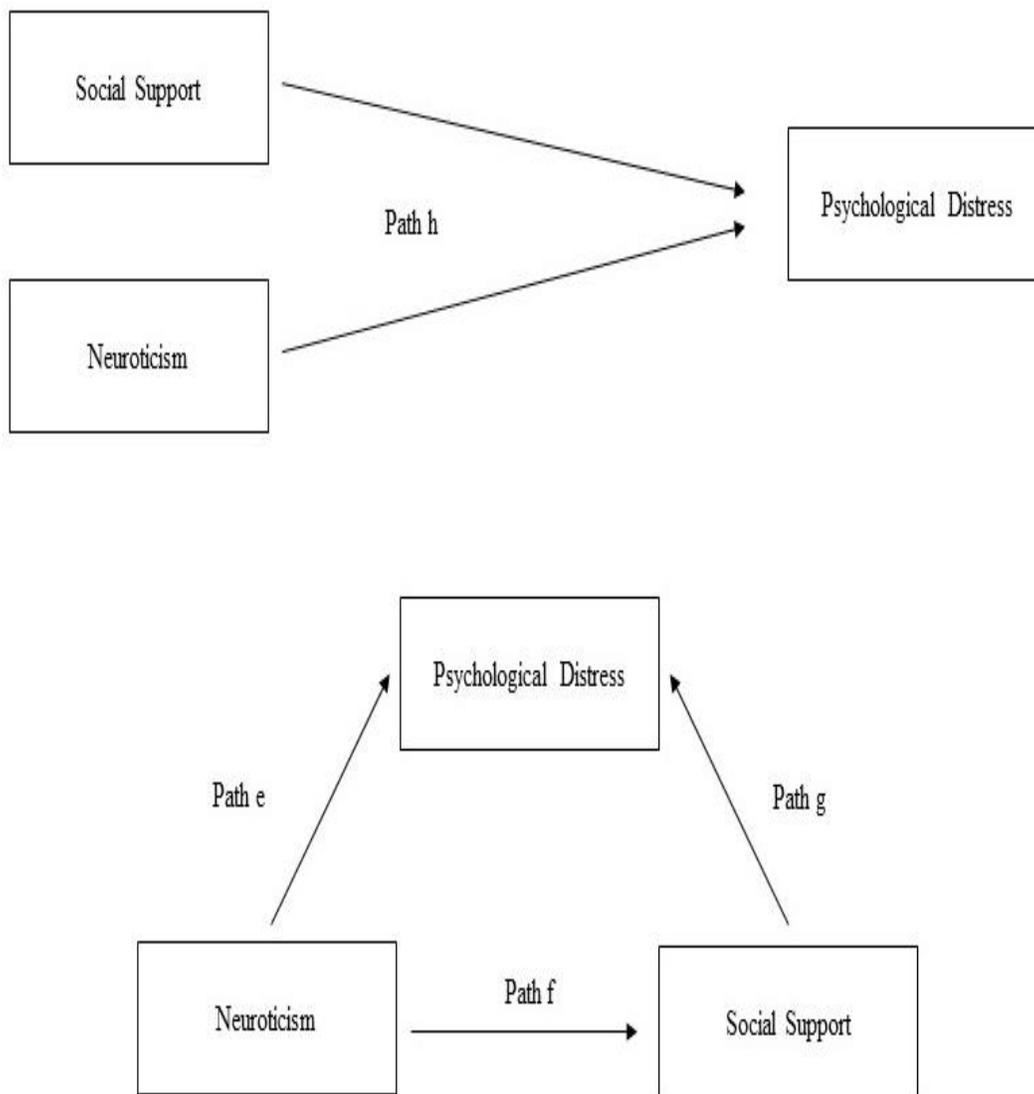


Figure 2. Conceptual mediation model of the effect of neuroticism on psychological distress with the mediation of social support.

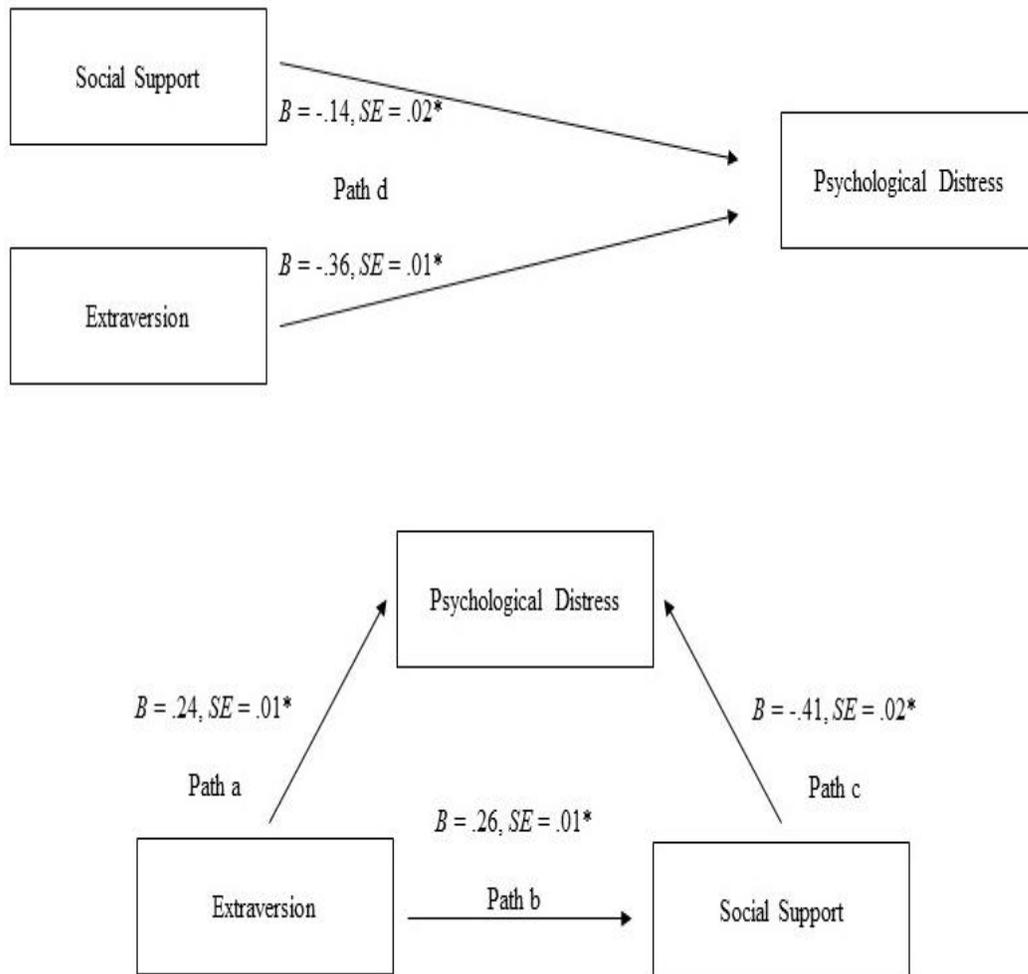


Figure 3. Mediation model of the effect of extraversion on psychological distress with the mediation of social support. * $p \leq .05$ (2-tailed) (rounded to the nearest hundredth).

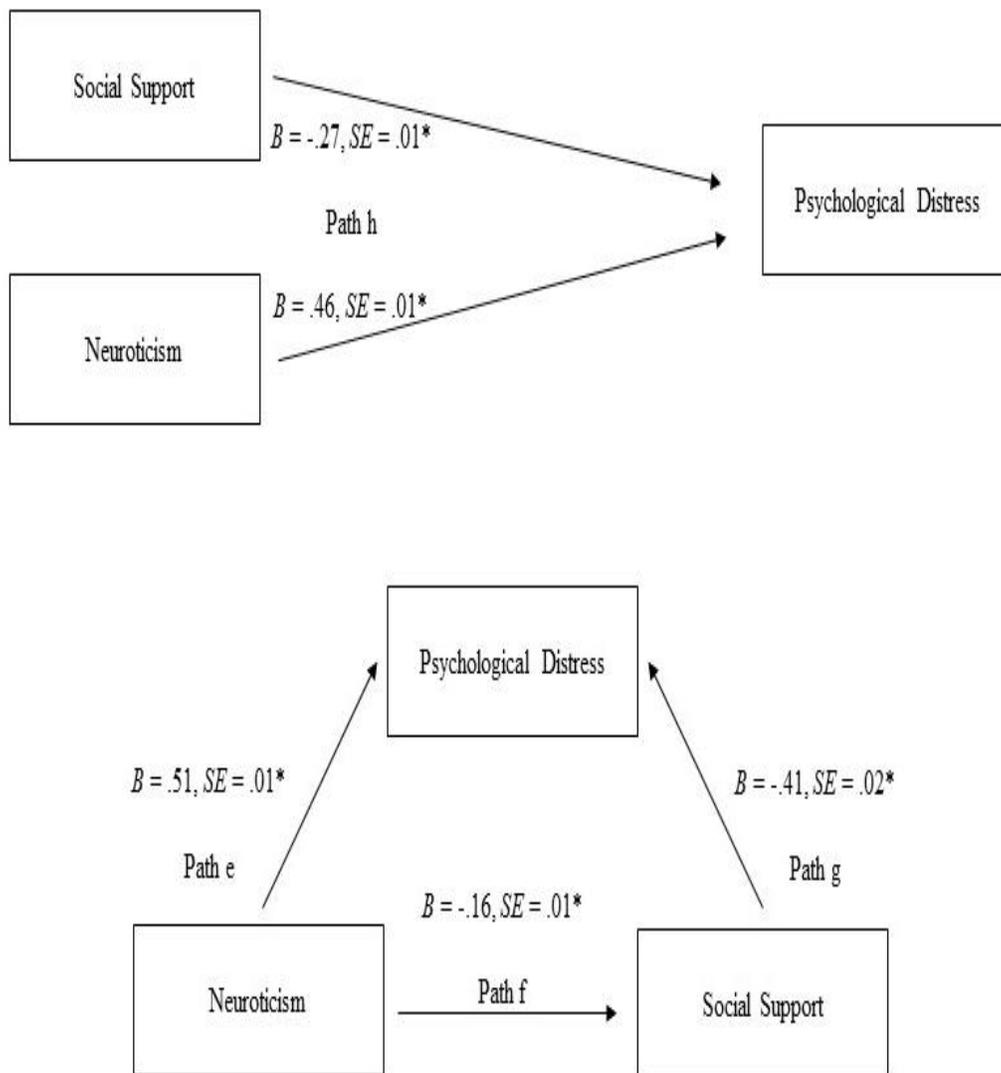


Figure 4. Mediation model of the effect of neuroticism on psychological distress with the mediation of social support. * $p \leq .05$ (2-tailed) (rounded to the nearest hundredth).

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