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Investigating the associations among perceived social support, neuroticism, extraversion, and depressive symptoms in early adolescence

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ABSTRACT

INVESTIGATING THE ASSOCIATIONS AMONG PERCEIVED SOCIAL SUPPORT, NEUROTICISM, EXTRAVERSION, AND DEPRESSIVE SYMPTOMS IN EARLY ADOLESCENCE

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Depression is a disorder that affects many adolescents. It can affect individuals from many different walks of life and can be devastating. While there are many factors that put an individual at risk, there are also factors that may serve to protect individuals. Two important factors that are related to depression are personality and perceived social support. It has been hypothesized that high levels of neuroticism and low levels of positive emotionality (a facet of extraversion) are underlying factors in depression. Furthermore, high levels of perceived social support from parents and classmates have been shown to decrease the risk of depression in adolescents. The present study sought to investigate the role of neuroticism and extraversion in the experience of depressive symptoms in adolescents. More specifically, the present study investigated whether extraversion moderates the relationship between neuroticism and depressive symptoms. It also sought to test whether perceived social support from parents and classmates served as mediators in the relationship between personality and depressive symptoms. Findings from the current study indicate that extraversion moderates the relationship between neuroticism and depressive symptoms. Additionally, perceived social support from parents or classmates did not serve as mediators in the relationship between personality and depressive symptoms. Implications of the findings from the current study are discussed.

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INVESTIGATING THE ASSOCIATIONS AMONG PERCEIVED SOCIAL
SUPPORT, NEUROTICISM, EXTRAVERSION, AND DEPRESSIVE
SYMPTOMS IN EARLY ADOLESCENCE

BY

RAYMOND L. GEOSLING
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A DISSERTATION SUBMITTED TO THE GRADUATE SCHOOL
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
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Christine K. Malecki

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CHAPTER 1

INTRODUCTION

Overview

Depression is a devastating disorder that affects many people in the United States today. It affects people from all walks of life and individual of all ages. According to the National Institute of Mental Health (2015), 3 million adolescents between the ages of 12 and 17 experienced a major depressive episode in 2014. Put another way, 12.5% of adolescents experienced symptoms related to depression for a period of two weeks or longer. To better serve these individuals, it is important to understand what depression is, possible etiologies of depression, and protective factors.

Depression is a heterogeneous disorder that is difficult to define broadly. For example, depression can be a state, syndrome, or psychiatric disorder, which includes different subtypes. One broad definition that has been proposed for children and adolescents is a depressed or irritable mood, a loss of interest in previously enjoyable activities, and other symptoms (depending on the subtype; Klein, Kujawa, Black, & Pennock, 2013). Adolescents who experience depression often experience impaired relationships, are more likely to drop out of school, and are at an increased risk for suicide. Furthermore, depressed individuals may be at a higher risk for other psychiatric disorders (Klein et al., 2013). Risk factors for depression include

stress, maternal depression, abuse, and peer-victimization status (Duggal, Carlson, Sroufe, & Egeland, 2001; Holt & Espelage, 2007; Raffaelli et al., 2013). Fortunately, there are also protective factors against depression. These include effortful control, self-esteem, and parenting (Muris, 2006). One important factor that is related to depression is personality.

Personality can be defined as a relatively stable set of traits that influence a person's thoughts, feeling, and actions across various settings. There are different taxonomies and theories of personality (Neppl et al., 2010; Soto, John, Gosling, & Potter, 2008). One commonly used taxonomy is the Five Factor Model of personality. This model posits that personality can be described in terms of five broad domains. These include extraversion, neuroticism, conscientiousness, agreeableness, and openness to experience. Each one of these domains is related to important outcomes (e.g., relationship quality, anxiety, aggression, alcohol use; Belsky, Jaffee, Caspi, Moffitt, & Silva, 2003; Bogg & Roberts, 2004; Martin, Watson, & Wan, 2000). Importantly, personality is also related to depression.

There are several different models that attempt to account for the relationship between personality and psychopathology, including depression. These include the vulnerability model, the scar model, the pathoplasty model, and the spectrum model. The vulnerability model states a person's personality makes them vulnerable to psychopathology later in life. For example, according to the vulnerability model, someone who has a high level of neuroticism as an adolescent would be more likely to be depressed as an adult (Newton-Howes, Horwood, & Mulder, 2015). The scar model posits that a person's experience of psychopathology alters their personality. This is a difficult model to test due to the need of measuring personality before and after the onset of psychopathology. However, there is some limited support for this model (Klimstra, Akse, Hale, Raaijmakers, & Meeus, 2010). Third, the pathoplasty model suggests that

personality could influence certain aspects of a disorder (e.g., its onset or development) but that personality does not cause psychopathology. Similar to the scar model, the pathoplasty model is difficult to test and, therefore, has little empirical support (Tackett, 2006). Finally, the spectrum model suggests that personality and psychopathology exist along the same continuum. In other words, psychopathology is considered an extreme point on one or more personality dimensions (Nigg, 2006). The two models that have received the most support in explaining the relationship between personality and depression are the vulnerability and the spectrum models.

One example of a spectrum model is the tripartite model. The tripartite model has received considerable support (Anthony, Lonigan, Hooe, & Phillips, 2002; Lonigan, Phillips, & Hooe, 2003; Mervielde, De Clercq, De Fruyt, & Van Leeuwen, 2005; Van den Akker, Dekovic, Asscher, Shiner, & Prinzie, 2013). It states that a high level of neuroticism is the common underlying factor in anxiety and depression. This, in theory, explains the high comorbidity between the two disorders (Nigg, 2006). What distinguishes the two disorders, according to the tripartite model, is positive emotionality (a lower-order trait of extraversion) and physiological hyperarousal. High physiological hyperarousal and high neuroticism is characteristic of anxiety. On the other hand, high neuroticism and low positive emotionality characterizes depression (Clark & Watson, 1991). Although the tripartite model specifically states that depression is related to the lower-order trait of positive emotionality, there is evidence that the higher-order trait of extraversion is also negatively related to depression (e.g., Klimstra, et al., 2010; Tackett, Kushner, De Fruyt, & Mervielde, 2013; Van Leeuwen, Mervielde, De Clercq, & De Fruyt, 2007).

When investigating depression, it is important to understand the etiology, course, and outcomes associated with the disorder. However, it is also important to understand protective

factors that are pertinent to the lives of adolescents. Fortunately, there are several variables that are considered protective factors. As mentioned earlier, effortful control, self-esteem, and parenting can protect adolescents from negative outcomes such as depression (Muris, 2006). Another possible protective factor is perceived social support.

Perceived social support can be defined as “an individual’s perceptions of general support or specific supportive behaviors (available or enacted on) from people in their social network, which enhances their functioning or may buffer them from adverse outcomes” (Demaray & Malecki, 2002a, p. 215). Also, adolescents can have supportive relationships from many different people in their life. These include (but are not limited to) parents, teachers, classmates, and close friends. Demaray and Malecki (2002a) found a negative relationship between perceived social support and depression. Furthermore, higher levels of perceived social support are related to increased self-esteem, academic achievement, and increased social skills (Colarossi & Eccles, 2003; Malecki & Demaray, 2006; Rueger, Malecki, & Demaray, 2008). An individual’s level of perceived social support is related to several factors. These include family structure (Gayman, Turner, Cislo, & Eliassen, 2011; Riggio, 2004), sex (Malecki & Elliott, 1999; Martinez, 2006), and personality (Asendorpf & van Aken, 2003; Branje, van Lieshout, & van Aken, 2004; Geosling, 2015).

The literature has shown an important link between depression and social support in adolescence (Licitra-Kleckler & Waas, 1993; Rudasill, Pössel, Black, & Niehaus, 2014; Tanigawa, Furlong, Felix, & Sharkey, 2011). It has also shown a relationship between personality and social support in adolescents throughout the world (Asendorpf & van Aken, 2003; Branje et al., 2004; Geosling, 2015). It is plausible that the tripartite model explains the relationship between personality and depression (Anthony et al., 2002; Lonigan et al., 2003;

Mervielde et al., 2005; Van den Akker et al., 2013). Interestingly, perceived social support is a factor that interacts with neuroticism, extraversion, and depression in such a way as to be a possible mediating variable. That is, neuroticism is positively related to depression. Perceived social support is negatively related to depression. Furthermore, neuroticism is negatively related to perceived social support. As an example, if an adolescent is high in neuroticism, it would be expected that he or she has lower perceived social support which, in turn, could lead to higher levels of depression. Theoretically, the relationship would work in much the same way when examining extraversion. That is, extraversion is negatively related to depression and positively related to perceived social support. Therefore, if an adolescent is high in extraversion, it would be expected that he or she has higher perceived social support which, in turn, could lead to lower levels of depression. Put together, the relationships work out in much the same way that the tripartite model works: higher levels of neuroticism and lower levels of extraversion are each related to lower levels of perceived social support which, in turn, are all individually related to higher levels of depression. Alternatively, lower levels of neuroticism and higher levels of extraversion are each related to higher levels of perceived social support. In turn, all of these individual factors are related to lower levels of depression.

Lewis, Bates, Posthuma, and Polderman (2013) have examined these variables with a sample of adults from the Netherlands. They investigated if perceived social support mediated the relationship between personality and symptoms of anxiety and depression. They found that neuroticism was related to both anxiety and depression and that extraversion was only related to depression (not anxiety). Furthermore, they found that social support did not influence depression beyond the effects of personality.

In a similar study, Finch and Graziano (2001) investigated perceived social support, personality, temperament, and depression. More specifically, they investigated whether personality variables (neuroticism, extraversion, and agreeableness), social support, and negative social exchange mediated the relationship between temperament and depression. They found that each of the five variables (neuroticism, extraversion, agreeableness, social support, and negative social exchange) mediated the relationship between temperament and depression.

In a 2009 study, Wetter and Hankin investigated the role of perceived social support in terms of the tripartite model in a sample of sixth to tenth graders. More specifically, they tested how negative emotionality and positive emotionality interacted with depressive symptoms. They also looked at the mediating roles of perceived social support and stressors. They found that both negative emotionality and positive emotionality predicted later depressive symptoms. They also found a significant interaction in that depressive symptoms were greater at higher levels of negative emotionality and lower levels of positive emotionality. Furthermore, supportive relationships partially mediated the relationship between positive emotionality and depressive symptoms (but it did not mediate the relationship between negative emotionality and positive emotionality on depressive symptoms).

In the previously mentioned three studies, only Wetter and Hankin (2009) examined the variables through the lens of the tripartite model. Furthermore, each study measured perceived social support differently. Lewis et al. (2013) measured individual's degree of satisfaction with global social support. These researchers did not differentiate by source or include the amount of social support within their analyses. Finch and Graziano (2001) measured type of social support (i.e., tangible, appraisal, self-esteem, and belonging) rather than amount of social support. Furthermore, they did not differentiate by source of support. Finally, for their measure of

supportive relationships, Wetter and Hankin used a measure that investigated a variety of different aspects of a relationship (e.g., a dependable bond, enhancement of worth, instrumental help, affection, companionship, independence, and nurturance of the other) rather than pure social support (Furman, 1998). They also did not differentiate by source of support within their analyses, which is an important component when looking at outcomes (Rueger, Malecki, Yoonsun, Aycock, & Coyle, 2016).

The present study will investigate how perceived social support from particular sources is related to depression. It will also investigate how extraversion and neuroticism are related to depression. The tripartite model will be tested by examining the moderating role of extraversion on the relationship between neuroticism and depression. Finally, the present study will investigate the role of perceived social support within the tripartite model by testing if perceived social support from particular sources mediates that moderation.

Literature Review

Adolescence can be difficult. It is a time when children are transitioning into a new life stage where they are expected to have more responsibilities. As they look to the future, kids have to think about becoming adults. Besides life circumstances, adolescents have to deal with an increasingly complex world that includes social situations, academics, social media, friend groups, extra-curricular involvement, possible familial strife, and possible romantic relationships. As unfortunate as it is, it is no surprise that adolescents experience mental health issues. In fact, about 20% of children and adolescents experience symptoms of internalizing disorders at some point in their young lives (Prinzle, van Harten, Dekovic, Van den Akker, & Shinder, 2014). These disorders can cause significant life impairment such as an increased risk

for suicide, impaired social functioning, and excessive emotional distress (Klein et al., 2013; Weems & Silverman, 2013). Individuals differ in their experiences of internalizing disorders, particularly depression, and it is important to understand factors that are related to these disorders in children and adolescents. Risk factors for depression include stress, maternal depression, abuse, and peer-victimization status (Duggal et al., 2001; Holt & Espelage, 2007; Raffaelli et al., 2013). Fortunately, there are also protective factors against anxiety and depression. These include effortful control, self-esteem, and parenting (Muris, 2006). Personality is another important construct in the lives of children and adolescents in their experience of depressive symptoms.

Personality

Personality can be defined as a person's thoughts, feelings, and behaviors across a variety of situations. Research has shown that personality is an important construct to consider when conceptualizing how an individual interacts with the world. For example, personality is related to outcomes such as risk-taking behavior, aggressive behavior, how someone interprets ambiguous stimuli, and even length of life (Bogg & Roberts, 2004; Chan, Goodwin, & Harmer, 2007; Friedman et al., 1993; Martin et al., 2000; Ormel et al., 2013).

Although this topic has been studied extensively in adults, there is a dearth of research on personality in youth (Tackett et al., 2012). Cross-sectional and longitudinal studies provide evidence that personality can be measured starting in childhood. However, there are questions regarding how to conceptualize personality prior to adulthood. Researchers differ on this important point. For instance, some believe there should be a single, unifying taxonomy from childhood through adulthood (McCrae et al., 2000). Conversely, others think the structure of

personality develops as children mature (Block, 2010). Other relevant topics that are present in personality measurement in children and adolescents include the appropriate level of abstraction in the conceptualization of personality, how personality develops, how personality should be measured in youth, and personality stability from childhood to adolescence to adulthood.

Personality Structure

While there has been debate as to how to conceptualize personality at a younger age (Allik, Laidra, Realo, & Pullmann, 2004; Neppl et al., 2010; Robins, John, Caspi, Moffitt, & Stouthamer-Loeber, 1996; Soto, 2015; Soto & John, 2014), there is one important point that is largely agreed upon amongst researchers. That is, similar to adult personality structure, child and adolescent personality structure is hierarchical in nature (Markon, Krueger, & Watson, 2005; Shiner, 2006; Shiner & Caspi, 2003; Soto & John, 2014; Tackett et al., 2012). A hierarchical personality structure means that there are higher-order traits and lower-order traits. Higher-order traits are broad, abstract domains meant to describe personality. These are comprised of lower-order, more nuanced traits. For example, the Hierarchical Personality Inventory for Children (Mervielde & De Fruyt, 1999) has a higher-order trait of conscientiousness that is comprised of lower-order traits such as achievement, orderliness, concentration, and persistence. Disagreement exists as to which lower-order traits fall under which higher-order traits (John, Naumann, & Soto, 2008). Another disagreement is the appropriate level of abstraction (i.e., the number of higher-order traits) when delineating the higher-order traits.

Common factor structures of personality include 2-, 3-, 4-, and 5-factor models. Each of these factor structures has been found in adult and youth populations (Neppl et al., 2010; Soto et al., 2008). The 5-factor model includes extraversion, neuroticism, agreeableness,

conscientiousness, and openness to experience. Central characteristics of extraversion include positive emotionality, energy/activity, and sociability. Neuroticism describes those who might be vulnerable to stress, experience increased interpersonal conflict, and exhibit emotional instability. Since agreeableness assesses traits such as altruism and modesty, it is associated with positive interactions with others. Conscientiousness includes traits such as self-control, persistence, responsibility, and orderliness. Openness to experience, the most debated of the five higher-order traits, may include traits such as creativity, insightfulness, and the need for new experiences (Caspi, Roberts, & Shiner, 2005; John et al., 2008; Shiner, 2005). Shiner and Caspi (2003) suggest a 4-factor model that can be used to conceptualize adult ratings of personality in preschoolers. The factors within this model are extraversion, neuroticism, conscientiousness, and agreeableness. A 3-factor model of personality includes positive emotionality (extraversion and openness to experience), negative emotionality (neuroticism) and constraint versus disinhibition (conscientiousness and agreeableness; Soto & John, 2014). The 2-factor model has been labeled Alpha (higher-order factors include neuroticism [reversed], agreeableness, and conscientiousness) and Beta (higher-order factors include extraversion and openness; Shiner & DeYoung, 2013). As one can see, the 2-, 3-, 4-, and 5-factor models are not independent of one another (Tackett, Krueger, Iacono, & McGue, 2008). However, the 5-factor model has been subject to a considerable amount of research due to its prevalence in the literature pertaining to adult personality structure. Furthermore, it has been replicated in children and adolescents (McCrae et al., 2002; Measelle, John, Ablow, Cowan, & Cowan, 2005; Soto et al., 2008). Therefore, the remainder of this paper will focus on the 5-factor model, or Big Five, unless otherwise noted.

The Five-Factor Model (FFM) is a widely used taxonomy in adult personality research (Markon et al., 2005) and has been researched in children and adolescents as well (e.g., Shiner, 2005, 2006; Shiner & DeYoung, 2013; Soto & John, 2014; Soto et al., 2008). Even so, many have conceptualized one construct as a precursor to and distinct from personality in childhood. That is, temperament. More specifically, temperament has been thought to be a biological basis for personality. Therefore, temperament has often been used to measure individual differences in young children while personality has been used to measure individual differences in adults (De Pauw & Mervielde, 2010; Shiner & Caspi, 2003). While there is not one unifying definition for temperament, one popular conceptualization is that temperament includes affect, activity, attention, and self-regulation (Rothbart & Bates, 2006; Shiner & DeYoung, 2013). In the past, there have been questions regarding how temperament and personality relate to one another in youth. However, this distinction might not be warranted. For one, the FFM has been found in children and adolescents (Shiner, 2005, 2006; Shiner & DeYoung, 2013; Soto & John, 2014; Soto et al., 2008). Furthermore, researchers have stated that temperament and personality are more alike than different and some use the labels interchangeably (Caspi et al., 2005; Klein, Kotov, & Bufferd, 2011; McCrae et al., 2000). This is because temperament and personality share many characteristics, there is continuity from temperament to personality, and the distinction between the two becomes less clear as children transition out of infancy (Caspi, 2000; Shiner & Caspi, 2003). The Big Five personality structure is evident in school-aged children and even children as young as 3-years-old (Shiner & DeYoung, 2013; Tackett et al., 2012).

Stability and change

Personality is an important construct to measure in adolescence because it is related to outcomes both concurrently and longitudinally (Shiner, 2000, 2006; Tackett, Kushner, et al., 2013). Furthermore, there is a considerable amount of stability in personality across time (Allik et al., 2004; Caspi & Roberts, 2001; McCrae et al., 2002; Shiner, 2005). A meta-analysis by Roberts & DelVecchio (2000) found that the correlations across ages varied depending on developmental stage, with personality becoming more stable as children aged into adolescence then into adulthood. Cross-time correlations were as follows: 0 to 2.9 years: .35, 2 to 5.9 years: .52, 6 to 11.9 years: .45, and 12 to 17.9 years: .47 (it should be noted that this meta-analysis examined the stability of personality in the entire sample, not in individuals). Factors that contribute to personality stability include stable environments, environments being chosen that match one's personality, and genetic factors (Caspi & Roberts, 2001).

Even though there is a degree of stability across ages, personality is not an unchanging construct. In fact, when personality stability is investigated within individuals rather than the average level of personality in a sample, there could be a substantial amount of change that occurs for children and adolescents. Costa and McCrae (2002) explain that individual children may experience significant changes in their personalities. These changes are not necessarily captured in studies that only investigate average level of personality in the sample because some children might decrease on a certain trait while other children would increase on the same trait. Therefore, the average level across time would appear the same for the entire population when, in fact, individual children experience personality change. Costa and McCrae point out that there are no clear changes that occur across children. Instead, there are individual differences as to

which personality domains increase and which decrease. The exception to this might be openness to experience, with this domain increasing as children age (Costa & McCrae, 2002). Factors that might contribute to personality change in childhood and adolescence include responding to both implicit and explicit punishments/rewards, viewing the behaviors of others, self-reflecting, and interacting with others (Caspi & Roberts, 2001). Some researchers suggest that the higher-order traits have different mechanisms that lead to change (Soto, John, Gosling, & Potter, 2011). While personality might not become stable until much later in life (i.e., around 50 years old; Roberts & DelVecchio, 2000), Caspi & Roberts (2001) explain that when considered together, the effects of personality consistency are greater than those of personality change across the lifespan.

Even though there is both stability and change in personality across childhood and adolescence, measuring personality in youth is important because this construct has significant implications for how the children and adolescents interact with their environment. Research suggests that personality in childhood and adolescence is concurrently related to delinquency, social relationships, internalizing behaviors, and externalizing behaviors (John, Caspi, Robins, Moffitt, & Stouthamer-Loeber, 1994; Shiner, 2006; Tackett, Kushner, et al., 2013) and can predict behavior years later (Shiner, 2000, 2006). A second important reason is that personality does not change overnight and not all individuals experience the same degree of personality change. It is a process that results from a combination of life experiences and circumstances over time (Shiner, 2006). Even as there are individual differences in how people interact with their environment (i.e., part of personality), there are individual differences in how personalities change (Costa & McCrae, 2002).

Personality and Psychopathology

Research has shown that personality is related to important outcomes in youth. For example, evidence suggests that individual differences measured at 4-months-old are related to anxiety symptoms at 7-years-old (Kagan, Snidman, Zentner, & Peterson, 1999). Another study found that 3-year-olds with lower levels of positive emotionality and higher levels of neuroticism were more likely to have higher levels of depressive symptoms at 10-years-old (Dougherty, Klein, Durbin, Hayden, & Olino, 2010). In particular, the three higher-order traits that are consistently related to psychopathology in children and adolescents are neuroticism, extraversion, and conscientiousness (Dougherty et al., 2010; John et al., 1994).

Different models have been proposed to explain the relationship between personality and psychopathology. One is the spectrum model. This model posits that psychopathology and personality exist along the same continuum. That is, psychopathology is an extreme variant of one or more personality dimensions (Nigg, 2006). For example, lower-order traits of conscientiousness include attention and inhibitory control. If a child is low on these dimensions, the child's behavior may manifest itself in a similar way as to attention-deficit hyperactivity disorder (Shiner & Caspi, 2003). Likewise, extreme variants of certain personality traits could manifest as anxiety or depression.

A well-researched model that can be categorized under the spectrum model is the tripartite model (Clark & Watson, 1991). This model was developed to explain the relationship between personality, anxiety, and depression. Clark and Watson (1991) propose that three factors are important: neuroticism, positive emotionality (a lower-order trait of extraversion), and physiological hyperarousal. In their model, high neuroticism is an underlying factor in both

anxiety and depression. The other two factors distinguish the two disorders. More specifically, depression is characterized by low positive emotionality and high neuroticism. Anxiety is characterized by high neuroticism and physiological hyperarousal. This model provides a theoretical explanation of the comorbidity between anxiety and depression while explaining how the two disorders are separate (Nigg, 2006).

As mentioned earlier, extraversion is a multifaceted trait. While one lower-order trait of extraversion is related to depression (i.e., positive emotionality), other lower-order traits may not (Dougherty et al., 2010). Therefore, the negative relationship between positive emotionality and depression can be masked if one just looks at the higher-order trait of extraversion (e.g., John et al., 1994). However, some research has found that the higher-order trait of extraversion is negatively related to depression (e.g., Klimstra et al., 2010; Tackett, Kushner, et al., 2013; Van Leeuwen et al., 2007).

Support for the underlying role of neuroticism in terms of anxiety and depression was found in a recent study that showed a strong positive relationship between neuroticism and an internalizing factor ($r = .98$; Griffith et al., 2010). Joiner and Lonigan (2000) specifically investigated the tripartite model and depression. They found that for psychiatric inpatients, low positive emotionality and high neuroticism characterized youth diagnosed with a depressive disorder. Furthermore, this profile distinguished these youth from youth who were diagnosed with other disorders. Indeed, the tripartite model has been supported by research examining both anxiety and depression and their relationship to neuroticism and positive emotionality in youth (Anthony et al., 2002; Lonigan, Carey, & Finch, 1994; Lonigan et al., 2003; Mervielde et al., 2005; Phillips, Lonigan, Driscoll, & Hooe, 2002; Robins et al., 1996; Van den Akker et al., 2013). Importantly, these studies provide evidence that neuroticism is an underlying trait that is

present in both depression and anxiety while low positive emotionality distinguishes the two disorders. However, some research suggests that conscientiousness moderates the relationship between low neuroticism, low positive emotionality, and internalizing disorders (Lonigan & Vasey, 2009; Lonigan, Vasey, Phillips, & Hazen, 2004; Verstraeten, Vasey, Raes, & Bijttebier, 2009). This is because children who are high in neuroticism have an attentional bias toward negative stimuli. For those low in conscientiousness, this is related to internalizing symptoms. However, those who have higher levels of conscientiousness are thought to be able to alter their attention and not focus on the negative stimuli. Therefore, high conscientiousness may protect against internalizing disorders (De Pauw & Mervielde, 2010).

The second model that attempts to explain the relationship between personality and psychopathology is the vulnerability model. This model states that an individual's personality could be a risk factor for later psychopathology (Tackett, 2006). Longitudinal studies that measure personality prior to the onset of psychopathology provide the strongest support for this model (Shiner & Caspi, 2003). Results from one longitudinal study suggest that level of neuroticism and positive emotionality predicted anxious and depressive symptoms 7 months later (Lonigan et al., 2003). Another longitudinal study found that neuroticism measured at age 14 predicted anxiety and depression at age 30 (Newton-Howes, Horwood, & Mulder, 2015).

A third model that has been proposed is the scar model. This model proposes that psychopathology alters a person's personality (Shiner & Caspi, 2003). It is difficult to provide support for this model because it is more difficult to test. That is, it requires the measurement of personality prior to the onset of psychopathology in addition to the measurement of personality and psychopathology in the same individuals at a later time point (Tackett, 2006). In their longitudinal study, Klimstra et al. (2010) found that problem behaviors predicted later

personality. While this supported the scar model, they also found that personality predicted later problem behaviors. Thus, their data support both the scar and vulnerability models.

The final model that attempts to explain the relationship between personality and psychopathology is the pathoplasty model. This model proposes that personality could influence certain aspects of a disorder, such as its course or its development. Importantly, the individual's personality is not thought to cause the disorder (Shiner & Caspi, 2003). Similar to the scar model, this model does not have a large amount of evidence because its assumptions are more difficult to test. It would require the measurement of an individual's personality prior to the onset of psychopathology in addition to how the person's personality affects different aspects of the disorder (Tackett, 2006).

Choosing a model

Considered together, the spectrum model seems the most plausible and, along with the vulnerability model, has received the most support in explaining the relationship between personality and psychopathology. More specifically, the tripartite model explains the comorbidity of anxiety and depression (high neuroticism) and the traits that differentiate the two disorders (low positive emotionality and physiological hyperarousal) in youth (Anthony et al., 2002; Lonigan et al., 2003; Mervielde et al., 2005; Van den Akker et al., 2013). Also, in a study that investigated models simultaneously, it was found that the continuity model (considered to be a "prerequisite" to the spectrum model) received the most support (De Bolle, Beyers, De Clercq, & De Fruyt, 2012). Furthermore, Tackett (2006) stated that longitudinal studies that have supported the vulnerability model could be interpreted to support the spectrum model as well. That is, if earlier personality predicts future psychopathology (vulnerability model), that does not

mean that personality and psychopathology do not lie on the same spectrum. For example, Lonigan et al. (2003) stated that, in general, their results support the vulnerability model because high levels of neuroticism and low levels of positive emotionality placed children at risk for later anxious and depressive symptoms. However, they stated later that concurrent relationships also support the tripartite model. Finally, preliminary evidence from a recent study involving twin pairs found etiological similarities between neuroticism and a general psychopathology factor, suggesting that neuroticism and the general psychopathology factor could lie on the same spectrum (Tackett, Lahey, et al., 2013).

Other researchers have posited that it is more likely that none of the proposed models account for entire relationship between personality and psychopathology. Instead, it is more likely that the different models explain the relationship under different circumstances or pertaining to different disorders (De Bolle et al., 2012; Tackett, 2006). The challenge with moving forward on this is the difficulty in testing the scar and pathoplasty models (Tackett, 2006). More research in this area and more sophisticated research designs can hopefully shed light on the relationship between personality and psychopathology. This is true for investigating the role of the scar and pathoplasty models but also for distinguishing between the spectrum and vulnerability models. It is also important to understand that personality does not fully account for depressive symptoms in adolescence. Another important construct is perceived social support.

Perceived Social Support

Although various definitions of social support exist, Demaray and Malecki (2002a) define it as “an individual’s perceptions of general support or specific supportive behaviors (available or enacted on) from people in their social network, which enhances their functioning

or may buffer them from adverse outcomes” (p. 215). A way to further conceptualize perceived social support is to use a model put forth by Charles Tardy (1985). Tardy emphasized that it is important to define the components involved in the measurement of social support. He gives five such components. The first is direction: is the social support given or received? The second component is disposition: whether support is available (perceived social support) and if it is used (enacted social support). The third component that Tardy explains is description/evaluation. Evaluation is the measurement of a person’s satisfaction with the social support while description simply describes the social support without evaluating satisfaction with that social support. The fourth component is content: the type of support that is received. There are four general content areas of social support: emotional, instrumental, informational, and appraisal. Emotional support involves constructs such as trust, empathy, and love. Instrumental support is seen through practical means, such as loaning someone a tool. Informational support can be understood as giving advice while appraisal support refers to evaluative feedback. The final component of social support measurement that Tardy sought to explain is the network (i.e., the people in an individual’s life that provide support). Much of the research on perceived social support and mental health outcomes focuses on support that is received, perceived, and of a specific content (i.e., emotional support).

When considering perceived social support and its role in mental health, it is important to think about who might benefit from social support. Two different models attempt to answer this question: the main effect model and the stress-buffering hypothesis. The main effect model states that social support is related to positive outcomes for all people. According to the main effect model, everyone experiences the positive outcomes associated with perceived social support, regardless if they experience a stressful event or not. This could be due to the positive mental

state that comes with knowing that others are available if needed. It could also provide a sense of belonging and security, while the absence of a social network (i.e., isolation) leads to negative outcomes (Cohen, Underwood, & Gotlieb, 2000). Conversely, the stress-buffering hypothesis states that social support has a moderating effect between a stressful event and a negative outcome. This might happen by the support provider giving a solution to the stressful event, a reappraisal of the stressful event, or the support provider may serve as a distraction from the stressful event. According to this hypothesis, social support only benefits those who are experiencing stress (Cohen et al., 2000). Both models have received empirical support with some studies providing support for each (Bilsky et al., 2013; Kennedy, Bybee, Sullivan, & Greeson, 2009; Tanigawa et al., 2011).

Perceived Social Support and Internalizing Disorders

Several studies have looked at the role of perceived social support on anxiety and depression concurrently. For example, one measure that has been used gives a single score for anxiety/depression (Holt & Espelage, 2005; 2007; Stewart & Suldo, 2011). These studies found that social support moderates the relationship between negative life events and anxiety/depression. Other studies did not combine the two constructs but analyzed them both simultaneously. While these studies show a negative relationship between social support and anxiety and depression, these studies also give an indication of the complicated relationship between perceived social support, anxiety, and depression. For example, these outcomes could depend on how social support is analyzed (by source or total support), sex of the student, the stressor, the outcome being measured, starting levels of social support, and how social support changes over time (Demaray & Malecki, 2002b; Hammack, Richards, Luo, Edlynn, & Roy,

2004; Landman-Peeters et al., 2005; Rigby, 2000; Rosario, Salzinger, Feldman, & Ng-Mak, 2008; Rueger et al., 2008; Yeung Thompson & Leadbeater, 2013).

Perceived social support and depression

Other studies have analyzed the role of perceived social support in depressive symptoms. In general, there is a negative relationship between perceived social support and depressive symptoms in children and adolescents, both cross-sectionally and over time (Galambos, Leadbeater, & Barker, 2004; Jia et al., 2009; Licitra-Kleckler & Waas, 1993; Patten et al., 1997; Rudasill et al., 2014; Tanigawa et al., 2011). As discussed earlier, students who experience significant amounts of stress are at an increased risk for developing depression. Research suggests that perceived social support can moderate the relationship between stress and depression (Kaufman et al., 2004; Raffaelli et al., 2013). Interestingly, several studies suggest that females may benefit from support more so than males (Rueger, Chen, Jenkins, & Choe, 2014; Schraedley, Gotlib, & Hayward, 1999; Vaughan, Foshee, & Ennett, 2010). This may be because males and females differ in the how they approach social relationships, how much they value social relationships, and the amount of intimacy that is expected within these relationships (Rueger et al., 2008). However, a recent meta-analysis examining the relationship between social support and depression found that there is not an important difference between males and females in the relationship between social support and depression (Rueger et al., 2016). These results suggest that both sexes benefit from perceived social support and that perceived social support is important for the mental health of both females and males.

One important issue is whether social support influences one's levels of depressive symptoms or if one's depressive symptoms influence the amount of social support one perceives.

A number of longitudinal studies have found that early levels of support predict later depressive symptoms (e.g., Colarossi & Eccles, 2003; Meadows, Brown, & Elder, 2006; Newman, Newman, Griffen, O'Connor, & Spas, 2007; Reddy, Rhodes, & Mulhall, 2003; Rueger et al., 2014; Sheeber, Hops, Alpert, Davis, & Andrews, 1997; Vaughan et al., 2010; Wetter & Hankin, 2009). Other studies have found evidence to suggest an interplay between the two. That is, support predicts later depressive symptoms but depressive symptoms also predict later support (Bilsky et al., 2013; Needham, 2008; Slavin & Rainer, 1990; Stice, Ragan, & Randall, 2004). It may also depend on how social support is measured. More specifically, the source of social support could be an important factor. One study found that low levels of perceived parent support predicted future depressive symptoms while perceived peer support did not. Interestingly, the same study found that depressive symptoms predicted future perceived peer support but this result was not found in relation to perceived parent support (Stice et al., 2004). Results such as this shine light on the complex relationship between perceived social support and depression.

There have been several attempts to explain the negative relationship between social support and depression. One possible explanation is that the depressed individual seeks excessive reassurance, causing support providers to pull away (Stice et al., 2004). A second explanation is distorted cognitions. That is, depressed individuals may perceive ambiguous stimuli in a more negative way than individuals who are not depressed (Muris & Ollendick, 2005). Therefore, these individuals may perceive ambiguous acts as less supportive whereas non-depressed individuals may perceive the same acts as supportive. One model that was developed to explain the negative relationship between social support and depression is the social support deterioration model of depression. This model states that social support is a mediating factor

between a negative event and depression. Unfortunately, stress deteriorates the perceived availability and effectiveness of this support. Therefore, as someone experiences stress, social support mediates the relationship between this stress and depression. But as someone continues to experience stress, the amount of perceived social support deteriorates through perceiving lower effectiveness of that support or a literal deterioration of the network (i.e., support providers may abandon the individual if the stress is too taxing on the relationship; Seeds, Harkness, & Quilty, 2010).

Contrary to the social support deterioration model of depression, longitudinal studies presented earlier suggest that levels of support predict depressive symptoms, with some studies showing a reciprocal relationship between the two. A pure deterioration model of depression on social support as suggested by Seeds et al. (2010) is unlikely. Instead, the relationship between perceived social support and depression should be understood as a complex relationship between two multifaceted constructs. The heterogeneity across studies (e.g., definition of social support, support sources included, age ranges, length between data collection, measurement of anxiety, and measurement of depression) makes it difficult to draw firm conclusions regarding this relationship. While further research is required, it is evident that there is a negative relationship between depression and perceived social support.

While it can be considered a general principle that perceived social support from others plays an important role in the experience of depressive symptoms, some researchers have examined the importance of the source of support. That is, the perceived social support from some important people in the lives of youth may have a more significant impact on depressive symptoms when compared to other sources of support. A recent meta-analysis has suggested that depressive symptoms have the strongest negative relationship to perceived support from family

members and individuals from the general peer group. The authors state that these symptoms are also negatively related to perceived support from teachers and close friends, but support from parents and the general peer group seems to impact depressive symptoms the most (Rueger et al., 2016). Indeed, perceived support from teachers plays a role in regards to depression (Colarossi & Eccles, 2003; Reddy et al., 2003), composite internalizing disorders (Demaray & Malecki, 2002a), and other important outcomes (Colarossi & Eccles, 2003; Malecki & Demaray, 2003; Rosenfield, Richman, & Bowen, 2000). However, other studies have found that perceived social support from teachers is not related to depressive symptoms (Conners-Burrow, Johnson, Whiteside-Mansell, McKelvey, & Gargus, 2009; Demaray & Malecki, 2002b; Demaray, Malecki, Davidson, Hodgson, & Rebus, 2005). When studied, close friend support seems to have the weakest relationship with depressive symptoms (Demaray & Malecki, 2002a; Demaray & Malecki, 2002b; Demaray et al., 2005; Rueger et al., 2016).

There is a negative relationship between social support and depression but it is difficult to say why this is the case. As mentioned earlier, there are several possible explanations, such as a deterioration of the support network, distorted cognitions, or a reciprocal relationship between perceived social support and the outcome being measured. The principal reason for this difficulty in explaining the relationship lies in the different methodologies employed by researchers. Researchers choose to use an array of instruments that measure the constructs in different ways or even define the constructs differently. For example, some researchers measure informational, appraisal, emotional, and instrumental support to include within their definition of perceived social support while other researchers only measure emotional support (e.g., Rueger et al., 2014; Yeung & Leadbeater, 2013). Another factor is the source of support that is included. Perceived support from parents and the general peer group (e.g., classmates) is more strongly related to

depressive symptoms than perceived support from teachers and close friends (Rueger et al., 2016). More nuanced measurement of perceived social support is helpful but there should be consistency to make comparisons across studies. Another possible reason is that studies differ on what variables are included. Important constructs that are related to perceived social support and depression include child temperament, family adversity, childhood maltreatment, social support decay or growth, and even genetics (Cornwell, 2003; Karevold, Røysamb, Ystrom, & Mathiesen, 2009; Kaufman et al., 2004). While each variable that is related to these constructs cannot be included in each study, understanding that there are many factors at play within these relationships is important.

The Tripartite Model and Perceived Social Support

The tripartite model has received a considerable amount of empirical support (e.g., Anthony et al., 2002; Joiner & Lonigan, 2000; Lonigan et al., 1994; Lonigan et al., 2003; Mervielde et al., 2005; Phillips et al., 2002; Robins et al., 1996; Van den Akker et al., 2013). This shows that important relationship between neuroticism, positive emotionality (or extraversion; Klimstra et al., 2010; Tackett, Kushner, et al., 2013; Van Leeuwen et al., 2007), and depression may exist. As previously discussed, perceived social support also has an important relationship with depression (Galambos et al., 2004; Jia et al., 2009; Licitra-Kleckler & Waas, 1993; Patten et al., 1997; Rudasill et al., 2014; Rueger et al., 2016; Tanigawa et al., 2011). These variables related to one another in such a way that perceived social support could be a mediator in the relationship between neuroticism, extraversion, and depressive symptoms. However, only a few studies have investigated the role of perceived social support within the tripartite model.

A recent study investigated personality, perceived social support, anxiety, and depression in a sample of adults from the Netherlands. The researchers found something similar to the tripartite model. That is, neuroticism was related to both anxiety and depression and that extraversion was only related to depression but not anxiety. When looking at the role of perceived social support, they found that perceived social support did not influence depression beyond the effects of personality (Lewis et al., 2013).

A second study examined whether the relationship between temperament and depression was mediated by particular personality variables (i.e., neuroticism, extraversion, and agreeableness), satisfaction with social support, and negative social exchanges in a sample of college students. Of particular interest, they found that satisfaction with social support mediated the relationship between extraversion and depression. Furthermore, satisfaction with social support partially mediated the relationship between neuroticism and depression (Finch & Grazziano, 2001).

One study has specifically investigated the role of perceived social support within the tripartite model in a sample of adolescents. Wetter and Hankin (2009) conducted a study with a sample of sixth to 10th graders to see how positive and negative emotionality interact with depressive symptoms and how these relationships might be mediated by other variables (i.e., perceived social support and stressors). Consistent with the tripartite model, Wetter and Hankin found that depressive symptoms were greatest at high levels of negative emotionality and low levels of positive emotionality. However, perceived social support did not appear to be an explanatory factor within the tripartite model. That is, perceived social support did not mediate the relationship between negative emotionality, positive emotionality, and depression.

As mentioned earlier, researchers measure perceived social support differently. That is also the case with the three previously mentioned studies. Lewis et al. (2013) measured global social support and looked at participants' degree of satisfaction with that support. Source of support and amount of support were not included in their study. In the second study, Finch and Graziano (2001) measured the type of social support that an individual perceived rather than the amount. They also did not differentiate by source of support. Third, Wetter and Hankin (2009) used a scale that measured several different aspects of a relationship (e.g., a dependable bond, enhancement of worth, instrumental help, affection, companionship, independence, and nurturance of the other) instead of solely investigating perceived social support (Furman, 1998). Similar to the two other studies, Wetter and Hankin did not differentiate by source of support. It is important to use a measure that specifically measures the amount perceived social support and one that differentiates by source of support (Connors-Burrow et al., 2009; Demaray & Malecki, 2002a; Demaray & Malecki, 2002b; Demaray et al., 2005; Rueger et al., 2016).

The Current Study

As mentioned earlier, early adolescence is a time of change that can have a marked influence on mental health. It is important to understand factors that may be related to mental health during this developmental stage. Therefore, the current study assessed the role of perceived social support within the tripartite model in a sample of early adolescents using a measure dedicated to measuring the amount of perceived social support from different sources. Furthermore, biological sex was tested as a potential moderator in the current study. It should be noted that the tripartite model has been updated due its lack of distinction between different anxiety disorders and because positive emotionality is not uniquely related to depression.

Because of this, researchers have been narrowing the focus of their studies to distinguish between the different types of disorders (please see Watson's [2005] discussion of the integrative hierarchical model for more details). These limitations, however, do not impact the current study. First, the present study is only concerned with depression, not anxiety. Second, while other researchers have narrowed their focus, the present study attempts to expand the tripartite model to include extraversion.

Research Questions and Predictions

Research Question 1

How do students' self-reported levels of perceived social support from parents and classmates relate to self-reported depressive symptoms in a sample of early adolescent students? Does biological sex moderate this relationship? In general, there is a negative relationship between perceived social support and depressive symptoms in children and adolescents (Galambos et al., 2004; Rudasill et al., 2014; Tanigawa et al., 2011). When examined by source of support, perceived social support from family members and individuals from the general peer group are most strongly, negatively related to depressive symptoms when compared to perceived support from other sources (e.g., close friends or teachers; Connors-Burrow et al., 2009; Demaray et al., 2005; Rueger et al., 2016). Furthermore, there is evidence to suggest that there is not an important difference between males and females in their experience of the relationship between perceived social support and depression (Rueger et al., 2016). Therefore, it is predicted that self-reported perceived social support from parents and classmates will both be negatively related to self-reported depressive symptoms. Additionally, it is predicted that biological sex will

not be a moderator between perceived social support from parents and classmates and depressive symptoms.

Research Question 2

How do students' self-reported levels of extraversion and neuroticism relate to self-reported depressive symptoms in a sample of adolescent students? Does biological sex moderate this relationship? The three higher-order traits that are consistently related to psychopathology are neuroticism, extraversion, and conscientiousness (Dougherty et al., 2010; John et al., 1994). Furthermore, evidence suggests that neuroticism can be thought of as an underlying trait in psychopathology (Anthony et al., 2002; Griffith et al., 2010; Mervielde et al., 2005). Additionally, extraversion is negatively related to depressive symptoms (Klimstra et al., 2010; Tackett, Kushner, et al., 2013; Van Leeuwen et al., 2007). Therefore, it is predicted that extraversion will be negatively related to depressive symptoms and neuroticism will be positively related to depressive symptoms. Furthermore, while biological sex could be an important factor in an adolescent's level of extraversion and neuroticism, both males and females could have either high or low level of extraversion and neuroticism (Soto et al., 2011). Also, the levels of the personality variables are thought to be the determinant factors in depression within the tripartite model, not biological sex (Clark & Watson, 1991). Therefore, it is predicted that biological sex will not be a moderator.

Research Question 3

Does level of extraversion moderate the relationship between neuroticism and depressive symptoms? In terms of depression, the tripartite model states that positive emotionality (a lower-

order trait of extraversion) moderates the relationship between neuroticism and depression (Clark & Watson, 1991). The tripartite model has received support from various studies (e.g., Joiner & Lonigan, 2000; Anthony et al., 2002; Lonigan et al., 2003; Phillips et al., 2002; Robins et al., 1996; Wetter & Hankin, 2009). There is also evidence that extraversion is related to depression in a similar way as positive emotionality (i.e., negatively related to depression; Klimstra et al., 2010; Tackett, Kushner, et al., 2013; Van Leeuwen et al., 2007). Therefore, it is predicted that extraversion will moderate the relationship between neuroticism and depressive symptoms.

Research Question 4

Does perceived social support from parents and classmates mediate the interaction of neuroticism and extraversion on depressive symptoms? There is an important relationship between neuroticism, extraversion, and depression (Klimstra et al., 2010; Tackett, Kushner, et al., 2013; Van Leeuwen et al., 2007). Perceived social support from parents and classmates also has an important relationship to depression (Conners-Burrow et al., 2009; Demaray et al., 2005; Rueger et al., 2016). When investigating the role of perceived social support in the relationship between personality and depressive symptoms in adolescence, the amount of support or the source of support have not been analyzed (Finch & Graziano, 2001; Lewis et al., 2013; Wetter & Hankin, 2009). However, personality, amount and source of perceived social support, and depressive symptoms relate to one another in such a way that perceived social support could be a mediator between personality and depressive symptoms. It is predicted that perceived support from parents and classmates will mediate the interaction of neuroticism and extraversion on depressive symptoms.

CHAPTER 2

METHODOLOGY

Participants

The original sample (i.e., prior to data cleaning) in the current study was comprised of 892 students in grades 7 and 8 from one suburban middle school in Illinois. Of these students, 463 were male (52%) and 428 were in the eighth grade (48%). The most prevalent ethnicity was White ($n=714$, 80%) followed by Hispanic ($n=84$, 9.4%) and African American ($n=36$, 4%). Additionally, 502 of the current sample received free or reduced lunch (56.2%). Demographic characteristics of the study participants are presented in Table 1. Data cleaning procedures are discussed below.

Data Cleaning Procedure

Data cleaning

The extant database that was used for the current study originally had 892 participants. Analyses were completed to investigate how many of the 892 participants did not have a score for the Depression subscale of the BASC-2. Of the 892 participants, 253 cases did not have depression scores. Of these 253 cases, 190 did not attempt the BASC-2 and 59 showed a clear pattern of stopping at a certain point within the BASC-2. This suggests that these individuals ran out of time. Four of the 253 cases completed portions of the BASC-2 but did not have a score for

Table 1

Demographic Information for Total Sample and by Sex

	Total Sample		Total School	
	<i>N</i>	% Total Sample	<i>N</i>	% Total
Total	892	--	1,136	--
Female	429	48.1%	--	--
Male	463	51.9%	--	--
7 th Grade	464	52.0%	556	48.9%
8 th Grade	428	48.0%	580	51.1%
Asian	21	2.4%	25	2.2%
Black	36	4.0%	46	4.0%
Hispanic	84	9.4%	114	10.0%
Indian/Alaskan Native	5	0.6%	6	0.5%
Native Hawaiian/Pac. Islander	1	0.1%	1	0.1%
Two or More Races	31	3.5%	52	4.6%
White	714	80.0%	892	78.5%
Free/Reduced Lunch	502	56.3%	645	56.8%

the Depression subscale. These 253 cases were deleted from the final sample. It should be noted that possible reasons that a high number of participants did not complete the BASC-2 include the setting in which participants completed the surveys (their PE classes) and that the survey packets were not counterbalanced.

Overall, the final sample use for analyses was comprised of 639 students in grades 7 and 8. Of these students, 304 were male (47.6%) and 318 were in the eighth grade (49.8%). The most prevalent ethnicity was White ($n=526$, 82.3%) followed by Hispanic ($n=53$, 8.3%) and two or

more races ($n=22$, 3.4%). Additionally, 342 of the sample received free or reduced lunch (53.5%). Demographic characteristics of the study participants after data cleaning are presented in Table 2.

Table 2

Demographic Information for Total Sample and by Sex After Data Cleaning

	Total Sample		Total School	
	<i>N</i>	% Total Sample	<i>N</i>	% Total
Total	639	--	1,136	--
Female	335	52.4%	--	--
Male	304	47.6%	--	--
7 th Grade	321	50.2%	556	48.9%
8 th Grade	318	49.8%	580	51.1%
Asian	16	2.5%	25	2.2%
Black	20	3.1%	46	4.0%
Hispanic	53	8.3%	114	10.0%
Indian/Alaskan Native	2	0.3%	6	0.5%
Two or More Races	22	3.4%	52	4.6%
White	526	82.3%	892	78.5%
Free/Reduced Lunch	342	53.5%	645	56.8%

Comparison of final sample and deleted cases

Independent-samples t-tests were conducted to compare differences between the deleted cases and the final sample. There was a statistically significant difference between the final

sample and deleted cases in grade, $t(890) = -1.70, p = .001$. More seventh grade students were removed from the final sample than eighth grade students. There was also a significant difference in sex, $t(890) = -4.150, p < .001$. More boys were removed from the final sample than girls. There was also a significant difference in ethnicity, $t(890) = -2.569, p < .001$. More Black and Hispanic were removed from the final same than students of other ethnicities. There were no significant differences between the final sample and the deleted cases in terms of lunch status, $t(890) = -2.674, p = .533$, perceived parent support, $t(809) = -1.98, p = .821$, perceived classmate support, $t(805) = -.43, p = .997$, extraversion, $t(743) = -1.50, p = .820$, or neuroticism, $t(742) = -.45, p = .141$.

Overall, more seventh grade students were deleted from the final sample than eighth grade students, more boys were removed from the final sample than girls, and more Hispanic and Black students were removed than students of other ethnicities. There were no significant differences between the original sample and the final sample in terms of lunch status, perceived support from parents or classmates, extraversion, or neuroticism.

Measures

Child and Adolescent Social Support Scale (CASSS; Malecki, Demaray, & Elliott, 2000)

The Child and Adolescent Social Support Scale (CASSS; Malecki et al., 2000) is a 60-item self-report scale that measures perceived social support in children and adolescents in grades 3 through 12. It is comprised of five subscales to measure perceived social support from five different sources: parent, teacher, classmate, close friend, and school (the data that the present study used only collected information about perceived support from parents, teachers, classmates, and close friends). There are 12 items for each subscale. These 12 items are intended

to measure four different types of social support from each source: emotional, instrumental, informational, and appraisal support (Tardy, 1985). An example of an item on the CASSS is “My parents show they are proud of me.” Students were asked to rate how often each item occurred using a 6-point Likert scale ranging from Never (1) to Always (6). Scores determining the frequency of perceived social support from each source (i.e., parent, teacher, classmate, close friend, or school) were calculated by summing the responses from an individual subscale (scores can range from 12 to 72). As previously discussed, perceived support from parents and classmates is more strongly related to depressive symptoms than perceived support from teachers or close friends. Therefore, the present study only used the parent and classmate subscales.

Evidence of reliability and validity for the CASSS was determined using data from multiple samples of students in grades 3 through 12 ($N = 5482$). The reliability of the CASSS was determined by internal consistency and test-retest reliability. Coefficient alphas ranged from .90 to .96 for the Frequency subscales. Eight- and 10-week test-retest reliability for Frequency subscales ranged from .58 to .74 and from .75 to .78 for Total Frequency scores (Malecki et al., 2000). Rueger, Malecki, and Demaray (2010) furthered the psychometric evidence for the CASSS with another middle school sample (grades 7 and 8 with 636 students). Coefficient alphas for the Frequency subscales ranged from .89 to .93. Information for test-retest reliability was obtained from a subsample ($n = 47$) within two months. The correlations ranged from .38 to .81. Validity was measured using other social support measures. The correlation between the CASSS Total score and the Social Support Scale for Children (SSSC; Harter, 1985) Total score was significant ($r = .56, p < .001$). Similarly, the correlation between the CASSS Total score and the Social Support Appraisals Scale (SSAS; Dubow & Ullman, 1989) Total score was also

significant ($r = .55, p < .001$; Rueger et al., 2010). Coefficient alphas for the current sample were .94 for both the perceived parent support and perceived classmate support subscales.

Big Five Questionnaire for Children (BFQ-C; Barbaranelli, Caprara, Rabasca, & Pastorelli, 2003)

The Big Five Questionnaire for Children (BFQ-C; Barbaranelli et al., 2003) is a 65-item self-report measure of personality. It has five subscales to measure core elements of the domains of the five factor model of personality (i.e., the Big Five): Energy/Extraversion, Agreeableness, Conscientiousness, Emotional Instability (i.e., Neuroticism), and Intellect/Openness to Experience. The BFQ-C measures the Big Five with 13 short phrases for each trait. Originally, the BFQ-C was written in Italian. For the present study, an English translation developed by Gaio (2011) was used. An example of an item that measures Energy/Extraversion is “I like to talk with others.” An example item that measures Agreeableness is “I think other people are good and honest.” Conscientiousness is measured by items such as “I concentrate on my work in class.” “I get nervous for silly things” is an example of an item that measures Neuroticism and “I would like very much to travel and learn about other countries” measures Intellect/Openness to Experience. During administration, participants read and rated each statement on a 5-point Likert scale ranging from Almost Never (1) to Almost Always (5).

An important aspect of the BFQ-C is that it was developed to measure the Big Five specifically in children. In the development process, teachers and parents identified a number of trait adjectives. These trait adjectives were developed into short, behaviorally oriented phrases and resulted in the 65-item self-report measure (Barbaranelli et al., 2003). Muris, Meesters, and Diederik (2005) report psychometric information from a sample of 222 young, Dutch

adolescents ranging in age from 12 to 17 years old. The reliability of the BFQ-C was determined by internal consistency. Coefficient alphas for Energy/Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Intellect/Openness to Experience were .78, .80, .74, .83, and .71, respectively. In a separate study, test-retest reliability ranged from .62 (Agreeableness) to .85 (Conscientiousness) after one week (del Barrio et al., 2006). Coefficient alphas for the current sample were .83 for both the Energy/Extraversion and Neuroticism subscales.

Behavior Assessment System for Children, Second Edition (Reynolds & Kamphaus, 2004)

The Behavior Assessment System for Children, Second Edition (Reynolds & Kamphaus, 2004) is set of norm-referenced rating scales used to assess children's and adolescents' behaviors and emotions. The system allows for the measurement of these factors from the perspective of the parent, teacher, or the individual across different age ranges (i.e., children aged 8-11, adolescents aged 12-21, and college students aged 18-25). For the present study, the BASC-2 Self-Report of Personality for Adolescents (SRP-A) was used. For this scale, students rated their emotions and behaviors using a True (T) or False (F) response format for a portion of the measure and 4-point scale ranging from Never (1) to Always (4) for the remainder of the measure. It is comprised of 176 items across 16 subscales that measure different aspects of emotions and behavior: Anxiety, Attention Problems, Attitude to School, Attitude to Teachers, Atypicality, Depression, Hyperactivity, Interpersonal Relations, Locus of Control, Relations with Parents, Self-Esteem, Self-Reliance, Sensation Seeking, Sense of Adequacy, Social Stress, and Somatization. As previously mentioned, the present study used extant data from a previous study. The previous study collected data from five of the BASC-2 SRP-A subscales (Attitude to School, Attitude to Teachers, Depression, Interpersonal Problems, and Relations with Parents).

The current study only examined the Depression subscale as an outcome measure and used non-gender specific T-Scores. The Depression subscale of the BASC-2 "...assesses traditional symptoms of depression, including feelings of loneliness, sadness, and an inability to enjoy life. A sense of hopelessness, pessimism, and dread underlies many of the items" (Reynolds & Kamphaus, 2004, p. 76). Note that items that are bolded and underlined in Appendix A are those items from the Depression subscale of the BASC-2. These were not bolded or underlined when given to students, just within this document.

The BASC-2 was normed on a large sample of children, adolescents, and college students. Coefficient alphas for the BASC-2 SRP-A were determined from a sample of 884 adolescents aged 12 to 14. For the Depression subscale, the coefficient alpha was .88. A subset of this sample ($n = 107$) completed the BASC-2 SRP-A again after 13 to 66 days to determine test-retest reliability. The test-retest correlation for the Depression subscale was $r = .81$. Validity was measured using other scales of social-emotional functioning. For the Depression subscale, the correlation between the BASC-2 SRP-A and the Anxiety/Depression subscale of the Achenbach System of Empirically Based Assessment Youth Self-Report (Achenbach & Rescorla, 2001) was $r = .72$. Furthermore, the correlation between the Depression subscale BASC-2 SRP-A and the Children's Depression Inventory (Kovacs, 2001) was $r = .69$. The coefficient alpha for the current sample was .90 for the depression subscale. Furthermore, 175 participants in the current study had a score above the average range, with 86 of those scoring within the clinically significant range.

Procedure

The data used in the present study were extant data. Data were collected as part of an all-school evaluation at a suburban middle school in Illinois. As part of the all-school evaluation, passive parental consent was obtained. Participants completed a survey packet containing seven surveys during their Physical Education class over a two-day period. On the first day of data collection, the following scales were administered: the Child and Adolescent Social Support Scale (Malecki et al., 2000), the Big Five Questionnaire for Children (Barbaranelli et al., 2003), parts of the Behavior Assessment Scale for Children, Second Edition (Reynolds & Kamphaus, 2004), a demographic questionnaire, and the Children's Social Experience Questionnaire (Crick & Grotpeter, 1996). On the second day of data collection, the Child and Adolescent Social Support Scale-Academic (Nowakowska, 2014), Academic Competence Evaluation Scales (DiPerna & Elliott, 2000), and the Big Five Inventory (John et al., 2008) were administered. Data across the two days were matched via student identification numbers. Graduate and undergraduate students from Northern Illinois University administered the survey packets and answered participants' questions. After a school evaluation report was delivered and the data were de-identified, approval from the Institutional Review Board (IRB) at Northern Illinois University was obtained to utilize the extant data.

Proposed Analyses

Preliminary analyses

Descriptive information for demographic information are summarized in Table 2. Means and standard deviations were run for each study variable. Furthermore, correlations amongst the

study variables were examined. The data was screened for outliers and assumptions of normality prior to the analysis of the primary research questions. Item parceling was done on the Big Five Questionnaire for Children (BFQ-C; Barbaranelli et al., 2003) due to concerns with factorability (Geosling, 2015). An ANOVA was run to investigate possible sex and age differences in depressive symptoms. Sex and age were entered as independent variables and depressive symptoms was entered as the dependent variable. Finally, MANOVAs were run to investigate possible sex and age differences. More specifically, a MANOVA with grade and sex as the independent variables and the personality variables (extraversion and neuroticism) as the dependent variables was conducted. Another MANOVA with grade and sex as the independent variables and the sources of support (parent and classmate) as the dependent variables was conducted.

All analyses were conducted using SPSS. Analyses exploring moderation and mediated moderation were completed using the PROCESS macro (Hayes, 2013). This macro operates within SPSS. It allows the user to mean center relevant variables. It also calculates the interaction terms, direct effects, and indirect effects automatically.

Research Question 1

How do students' self-reported levels of perceived social support from parents and classmates relate to self-reported depressive symptoms in a sample of adolescent students? Does biological sex moderate this relationship? It was predicted that perceived social support from both sources would be significantly negatively related to depressive symptoms and that biological sex would not be a moderator. Separate multiple regression analyses were conducted

with the source of support (parent or classmates) as the predictor, biological sex as the moderator, and depressive symptoms as the outcome variable.

Research Question 2

How do students' self-reported levels of extraversion and neuroticism relate to self-reported depressive symptoms in a sample of adolescent students? Does biological sex moderate this relationship? It was predicted that extraversion would be significantly negatively related to depressive symptoms while neuroticism would be significantly positively related to depressive symptoms and that biological sex would not be a moderator. Separate multiple regression analyses were conducted with the personality domain (extraversion or neuroticism) as the predictor, biological sex as the moderator, and depressive symptoms as the outcome variable.

Research Question 3

Does level of extraversion moderate the relationship between neuroticism and depressive symptoms? It was predicted that extraversion would moderate the relationship between neuroticism and depressive symptoms in that depressive symptoms would be higher at lower levels of extraversion and higher levels of neuroticism. This tested the tripartite model along with an additional moderator. This research question was tested using PROCESS Model 3 (Hayes, 2013). Neuroticism was entered as the predictor variable, extraversion as a moderator, sex as a moderator, and depressive symptoms as the outcome variable. See Figure 1 for a conceptual diagram of the tripartite model and Figure 2 for a visual representation of the prediction.

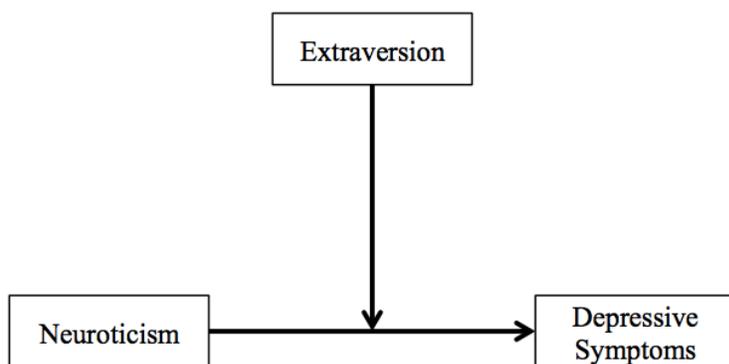


Figure 1: Conceptual model of the tripartite model (PROCESS Model 1).

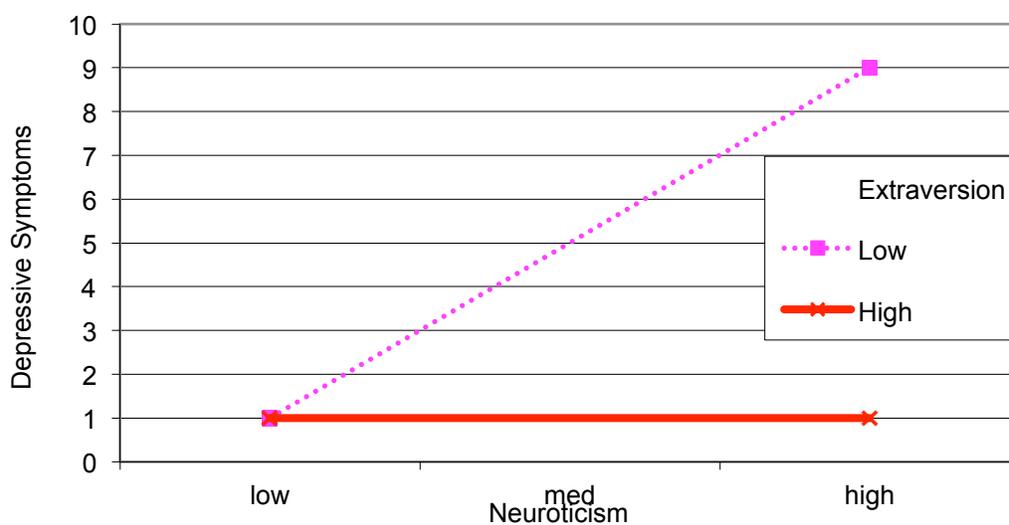


Figure 2: Visual representation of the prediction for research question three.

Research Question 4

Does perceived social support from parents and classmates mediate the interaction of neuroticism and extraversion on depressive symptoms? It was predicted that perceived social support from parents and classmates would mediate the interaction of neuroticism and

extraversion on depressive symptoms. These research questions were tested using PROCESS Model 8, which allows for multiple parallel mediators (Hayes, 2013). Neuroticism was entered as the predictor variable, extraversion as the moderator, perceived parent and classmate support as the mediators, and depressive symptoms was entered as the outcome variable. See Figure 3 for a conceptual diagram of this model.

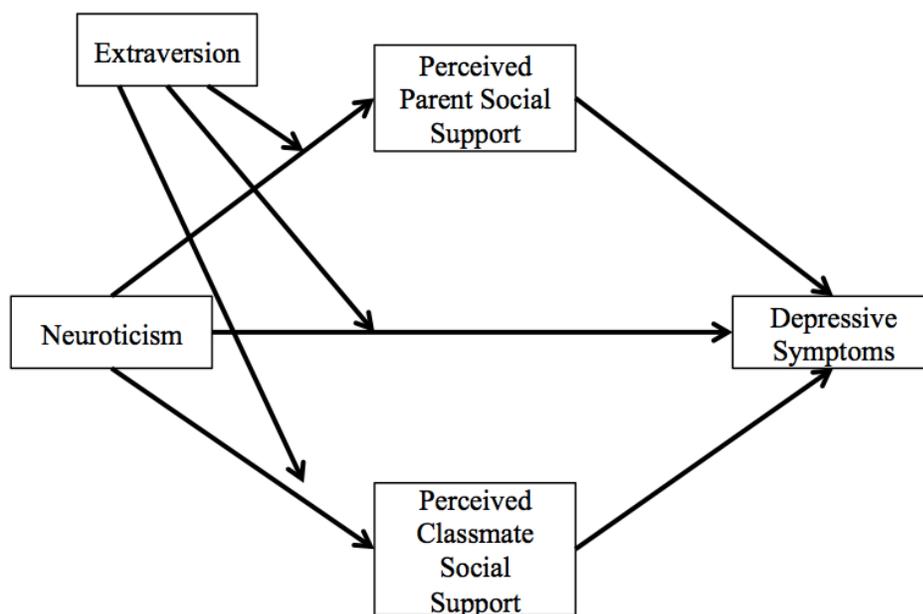


Figure 3: Conceptual model of PROCESS Model 8.

CHAPTER 3

RESULTS

Preliminary analyses

Preliminary analyses were conducted on the following variables: BASC-2 depression scores, perceived parent support, perceived classmate support, energy/extraversion, and neuroticism. The data met the assumptions of regression. All predictor variables were continuous. Durbin-Watson statistic ranged from 1.710 to 1.862. This indicates independence of observations. Multicollinearity was not an issue since the variance inflation factors were below 1.5. To detect univariate outliers, standardized scores were examined. Values in excess of 3.29 were considered outliers (Tabachnick & Fidell, 2013). It was found that there were two univariate outliers within the energy/extraversion variable. The assumption of homoscedacity was evaluated by plotting the standardized predicted values against the standardized residuals. The plots revealed a random spread of data points, indicating homoscedacity. Means and standard deviations for each study variable are reported in Table 3 and correlations amongst study variables are reported in Table 4.

A 2 (male, female) by 2 (seventh grade, eighth grade) factorial ANOVA was completed to investigate possible sex and age differences in depressive symptoms. There was a statistically significant difference between males and females, $F(1, 635) = 8.79, p < .01$, partial $\eta^2 = .014$. An investigation of means revealed that females' depression t-scores were, on average, two points

Table 3

Means and Standard Deviations of Study Variables

	Total <i>M</i> (SD)	Males <i>M</i> (SD)	Females <i>M</i> (SD)	7 th Grade <i>M</i> (SD)	8 th Grade <i>M</i> (SD)
Perceived Social Support					
Parent	53.42 (13.05)	54.07 (12.92)	52.84 (13.17)	53.74 (12.42)	53.10 (13.67)
Classmate	44.02 (13.81)	44.34 (13.60)	43.73 (14.01)	43.82 (13.67)	44.23 (13.97)
Personality					
Energy/Extraversion	48.90 (8.62)	49.61 (8.60)	48.25 (8.60)	49.60 (8.66)	48.19 (8.53)
Neuroticism	38.38 (9.72)	37.70 (9.20)	39.92 (9.93)	37.94 (9.35)	38.83 (10.07)
Depression	52.60 (12.41)	51.13 (11.25)	53.94 (13.25)	51.96 (11.74)	53.25 (13.04)

Note. Total $N=639$ (Male $n=304$, Female $n=335$; 7th Grade $n=321$, 8th Grade $n=318$)

Table 4

Correlations Between Study Variables

	1	2	3	4	5
1. Parent Support	-				
2. Classmate Support	.454**	-			
3. Energy/Extraversion	.419**	.488**	-		
4. Neuroticism	-.282**	-.232**	-.137**	-	
5. Depression	-.508**	-.404**	-.441**	.584**	-

Note: ** $p < .01$

higher than males' depression t-scores. There was not a statistically significant difference between seventh and eighth grade students on the level of depressive symptoms, $F(1, 635) = 2.09, p = .148$. Additionally, there was not a statistically significant grade by sex interaction, $F(1, 635) = .97, p = .326$.

A 2 (male, female) by 2 (seventh grade, eighth grade) MANOVA was conducted on personality (energy/extraversion, neuroticism) to investigate possible sex and age differences in energy/extraversion and neuroticism. Using Wilks's statistic, there was a statistically significant

difference between seventh and eighth students in personality, $\Lambda=.99$, $F(2, 634) = 3.16$, $p < .05$, partial $\eta^2=.01$. Separate univariate ANOVAs revealed that there was a grade main effect on energy/extraversion, $F(1, 635) = 5.07$, $p < .05$, partial $\eta^2=.025$. An investigation of means revealed that seventh grade students' scores on the energy/extraversion scale were, on average, one and a half points higher than eighth grade students' energy/extraversion scores. There was not a statistically significant grade main effect on neuroticism, $F(1, 635) = 1.93$, $p = .165$.

There was also a statistically significant difference between males and females on personality, $\Lambda=.97$, $F(2, 634) = 10.67$, $p < .001$, partial $\eta^2=.03$. Separate univariate ANOVAs revealed that there was a sex main effect on energy/extraversion, $F(1, 635) = 4.55$, $p < .05$, partial $\eta^2=.007$, and for neuroticism, $F(1, 635) = 18.77$, $p < .001$, partial $\eta^2=.029$. An investigation of means revealed that males' scores on the energy/extraversion scale were, on average, one and a half points higher than females' energy/extraversion scores. Additionally, females' scores on the neuroticism scale were, on average, three points higher than males' neuroticism scores. There was not a statistically significant grade by sex interaction, $\Lambda=1$, $F(2, 634) = 1.04$, $p = .353$.

A 2 (male, female) by 2 (seventh grade, eighth grade) MANOVA was conducted on perceived social support (perceived parent support, perceived classmate support) to investigate possible sex and age differences in perceived parent support and perceived classmate support. Using Wilk's statistic, there was not a statistically significant difference between seventh and eighth grade students on perceived social support, $\Lambda=1$, $F(2, 634) = .47$, $p = .623$. Also, there was not a statistically significant difference between males and females on perceived social support, $\Lambda=1$, $F(2, 634) = .75$, $p = .474$. There was not a statistically significant grade by sex interaction, $\Lambda=1$, $F(2, 634) = .64$, $p = .530$.

Geosling (2015) conducted a study using the BFQ-C (Barbaranelli et al., 2003). Due to concerns with factorability within that study (i.e., a lack of model fit), item parceling for the BFQ-C was completed prior to the confirmatory factor analysis (CFA) in an attempt to provide validity of personality measurement within the present study. Item parceling has been conducted with the BFQ-C (Barbaranelli, Fida, Paciello, Di Giunta, & Caprara, 2008) and other Big Five personality measures (see, for example, Allemand, Zimprich, & Hendriks, 2008; Marsh, Trautwein, Lüdtke, Köller, & Baumert, 2006). More specifically, a balancing approach was used to create three parcels for each of the five personality domains (Alleman et al., 2008; Little, Rhemtulla, Gibson, & Schoemann, 2013). Within each domain, the items with the highest factor loadings were chosen as the anchors for the three item parcels. Next, the item with the next highest factor loading was added to parcel one, then the item with the next highest loading was added to parcel two, then the item with the next highest loading was added to parcel three. This was repeated until every item was added to one of three parcels and this was completed for each of the Big Five personality domains.

The degree of fit for the BFQ-C with the present sample was investigated via CFA. Given the large sample size, χ^2 was expected to be large and statistically significant, indicating an inappropriate index to determine model fit in the present study (Raykov & Marcoulides, 2000). Therefore, fit indices that are less sensitive to sample size were used. These included the normed chi-square fit index, comparative fit index, and Root Mean Square Error of Approximation. Predetermined criteria were used to determine acceptable fit (comparative fit index of .90 or greater; Root Mean Square Error of Approximation of .08 or less; χ^2/df value of three or less; Browne & Cudek, 1993; Kline, 1998). The model tested was the presumed five-factor structure of the Big Five. Results indicate that the BFQ-C met the predetermined criteria for good fit for

two of the three indices. Although the normed chi-square fit index was above the predetermined criteria, it still falls within an acceptable range (Wheaton, Muthen, Alwin, & Summers, 1977).

Values are presented in Table 5.

Table 5

Confirmatory Factor Analysis Results

Measure	χ^2	<i>df</i>	χ^2/df	CFI	RMSEA
BFQ-C	322.76*	80	4.03	.96	.07

Notes. RMSEA: Root Mean Square Error of Approximation; CFI: Comparative fit index.

* $p < .001$.

Research Question 1

The relationship between students' perceived social support from parents and classmates and self-reported depression scores was investigated via separate multiple regression analyses. Within each analysis, the source of support (classmate or parent support) was entered as the predictor, sex was entered as the moderator, and the depression score was entered as the outcome variable. See Table 6 and 7 for results of the regression analyses.

The regression with perceived parent support as a predictor was statistically significant and explained a significant portion of the variance in depression scores ($R^2 = .277, p < .001$). The main effect of perceived parent support was statistically significant, showing a negative relationship between perceived parent support and depression scores ($b = -.477, p < .001$).

Table 6

Unstandardized Regression Coefficients of Depression Scores in Relation to Perceived Parent Support

	<i>b</i>	<i>SE b</i>	<i>R</i> ²	<i>Sig.</i>
Depression Scores			0.277**	<.001
Sex	2.239**	0.836		0.008
Perceived Parent Support	-0.477**	0.034		<0.001
Sex X Perceived Parent Support	-0.200**	0.068		0.004

Note. Sex was dummy coded (1=Female, 0=Male); ** $p < 0.01$

Table 7

Unstandardized Regression Coefficients of Depression Scores in Relation to Perceived Classmate Support

	<i>b</i>	<i>SE b</i>	<i>R</i> ²	<i>Sig.</i>
Depression Scores			0.178**	<.001
Sex	2.595**	0.891		0.004
Perceived Classmate Support	-0.359**	0.035		<0.001
Sex X Perceived Classmate Support	-0.119	0.071		0.091

Note. Sex was dummy coded (1=Female, 0=Male); ** $p < 0.01$

A statistically significant sex by parent support interaction was found to be significantly and negatively related to the depression score ($b = -.200, p < .01$). Figure 4 displays a graphical representation of this interaction, showing that the association between perceived parent support and depression scores is stronger for females than for males. Although not anticipated, a disordinal interaction occurred in which the mean level of depression switches for boys and girls. That is, at lower levels of perceived parent support, boys had a lower level of depressive

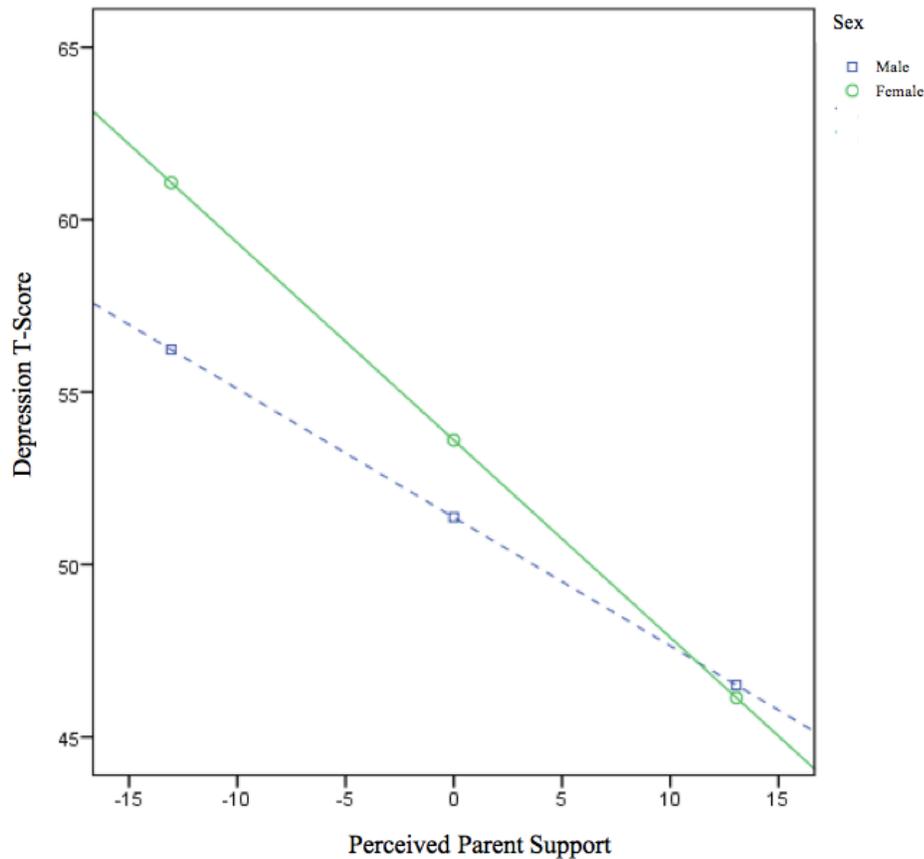


Figure 4: The interaction effect of sex and perceived parent support on depression scores.

symptoms than girls whereas boys had a higher level of depressive symptoms than girls at higher levels of perceived parent support.

The regression with perceived classmate support as a predictor was statistically significant and explained a significant portion of the variance in depression scores ($R^2=.178$, $p<.001$). The main effect of perceived classmate support was statistically significant, showing a negative relationship between perceived classmate support and depression scores ($b=-.359$, $p<.001$). There was not a statistically significant interaction between sex and perceived classmate support ($b=-.119$, $p=.091$).

Research Question 2

The relationship between students' self-reported levels of extraversion, neuroticism, and depression scores was investigated via separate multiple regression analyses. Within each analysis, the personality domain (extraversion or neuroticism) was entered as the predictor, sex was entered as the moderator, and the depression score was entered as the outcome variable. See Table 8 and 9 for results of the regression analyses.

Table 8

Unstandardized Regression Coefficients of Depression Scores in Relation to Energy/Extraversion

	<i>b</i>	<i>SE b</i>	<i>R</i> ²	<i>Sig.</i>
Depression Scores			0.202**	<.001
Sex	1.967*	0.878		0.026
Energy/Extraversion	-0.627**	0.057		<.001
Sex X Energy/Extraversion	-0.088	0.113		0.436

Note. Sex was dummy coded (1=Female, 0=Male); * $p < .05$; ** $p < 0.01$

Table 9

Unstandardized Regression Coefficients of Depression Scores in Relation to Neuroticism

	<i>b</i>	<i>SE b</i>	<i>R</i> ²	<i>Sig.</i>
Depression Scores			0.349**	<.001
Sex	0.474	0.804		0.556
Neuroticism	0.734**	0.043		<.001
Sex X Neuroticism	0.217*	0.086		0.012

Note. Sex was dummy coded (1=Female, 0=Male); * $p < .05$; ** $p < 0.01$

The regression with extraversion as a predictor was statistically significant and explained a large portion of the variance in depression scores ($R^2=.202, p<.001$). The main effect of extraversion was statistically significant, showing a negative relationship between extraversion and depression scores ($b=-.627, p<.001$). There was not a statistically significant interaction between sex and extraversion ($b=-.088, p=.436$).

The regression with neuroticism as a predictor was statistically significant and explained a large portion of the variance in depression scores ($R^2=.349, p<.001$). The main effect of neuroticism was statistically significant, showing a positive relationship between neuroticism and depression scores ($b=.734, p<.001$). A statistically significant sex by neuroticism interaction was found to be significantly and positively related to the depression score ($b=.217, p<.05$). Figure 5 displays a graphical representation of this interaction, showing that the association between neuroticism and depression score is stronger for females than males.

Research Question 3

The tripartite model was investigated through the moderating role of extraversion in the relationship between neuroticism and depressive symptoms. Given the moderating role of sex in the previous analyses, sex was entered as an additional moderator. This research question was tested using PROCESS Model 3. Neuroticism was entered as the predictor variable, extraversion was entered as a moderator, sex was entered as a moderator, and depressive symptoms as the outcome variable. See Table 10 for results of this analysis.

The overall model was statistically significant and explained a large portion of the variance ($R^2=.507, p<.001$). The main effect of extraversion was statistically significant, showing a negative relationship between extraversion and depression scores ($b=-.505, p<.001$). There was

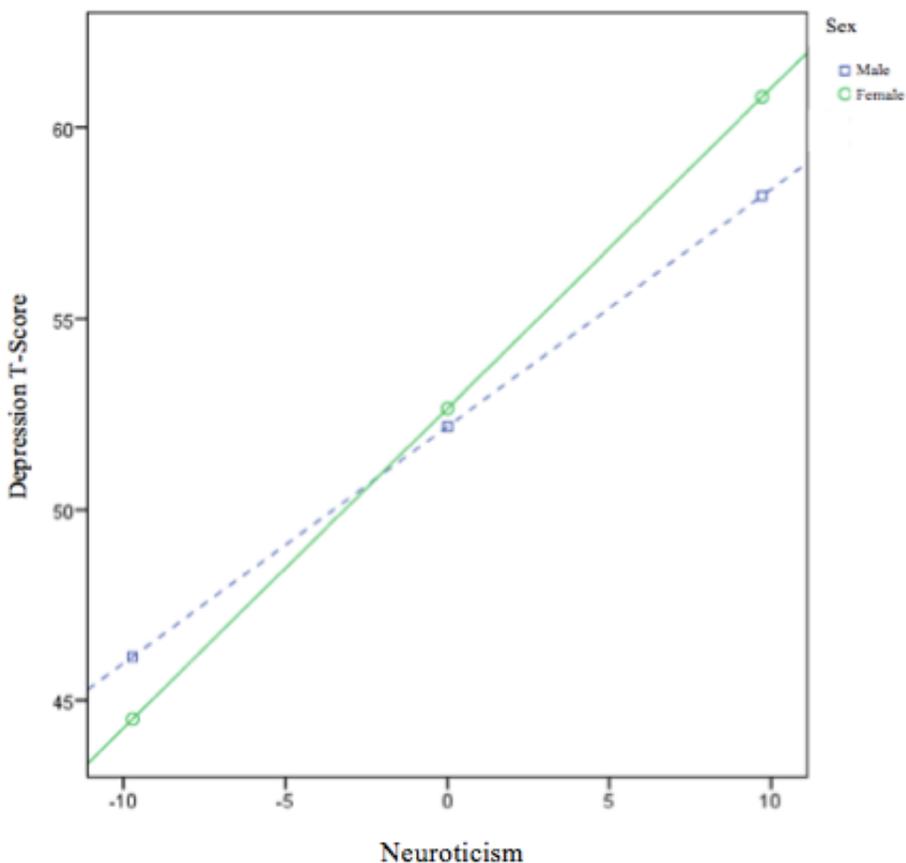


Figure 5: The interaction effect of sex and neuroticism on depression scores.

Table 10

Unstandardized Regression Coefficients of Depression Scores in Relation to Personality

Variables

	<i>b</i>	<i>SE b</i>	<i>R</i> ²	<i>Sig.</i>
Depression Scores			0.507**	<.001
Sex	-0.232	0.707		0.743
Energy/Extraversion	-0.505**	0.042		<.001
Neuroticism	0.723**	0.041		<.001
Energy/Extraversion X Neuroticism	-0.022**	0.004		<.001
Sex X Neuroticism	0.091	0.082		0.267
Sex X Energy/Extraversion	0.064	0.084		0.449
Sex X Energy/Extraversion X Neuroticism	0.007	0.007		0.315

Note. ** $p < 0.01$

also a statistically significant main effect for neuroticism, showing a positive relationship between neuroticism and depression scores ($b=.723, p<.001$). There was not a statistically significant main effect for sex ($b=-.232, p=.743$). A statistically significant extraversion by neuroticism interaction was found to be negatively related to the depression score ($b=-.022, p<.001$). Figure 6 displays a graphical representation of this interaction. Within this figure, the “medium” level of extraversion is the mean score for extraversion, the “high” level of extraversion is one standard deviation above the mean, and the “low” level of extraversion is one standard deviation below the mean. This figure shows that as the level of extraversion increases, the impact of neuroticism on depression scores decreases, thus supporting the tripartite model. This interaction was not moderated by sex (which is represented in Figure 7). That is, there was not a statistically significant three-way interaction between neuroticism, extraversion, and sex ($b=0.007, p=.315$). Additionally, there was not a statistically significant sex by neuroticism interaction ($b=.091, p=.267$) nor a statistically significant sex by extraversion interaction ($b=.064, p=.449$).

Research Question 4

The mediating role of perceived social support from parents and classmates between the interaction of neuroticism and extraversion on depressive symptoms was investigated. This research question was tested using PROCESS Model 8. Neuroticism was entered as the predictor variable, extraversion was entered as a moderator, perceived parent and classmate support as the mediators, and depressive symptoms as the outcome variable. Bootstrapping (Hayes, 2013) was

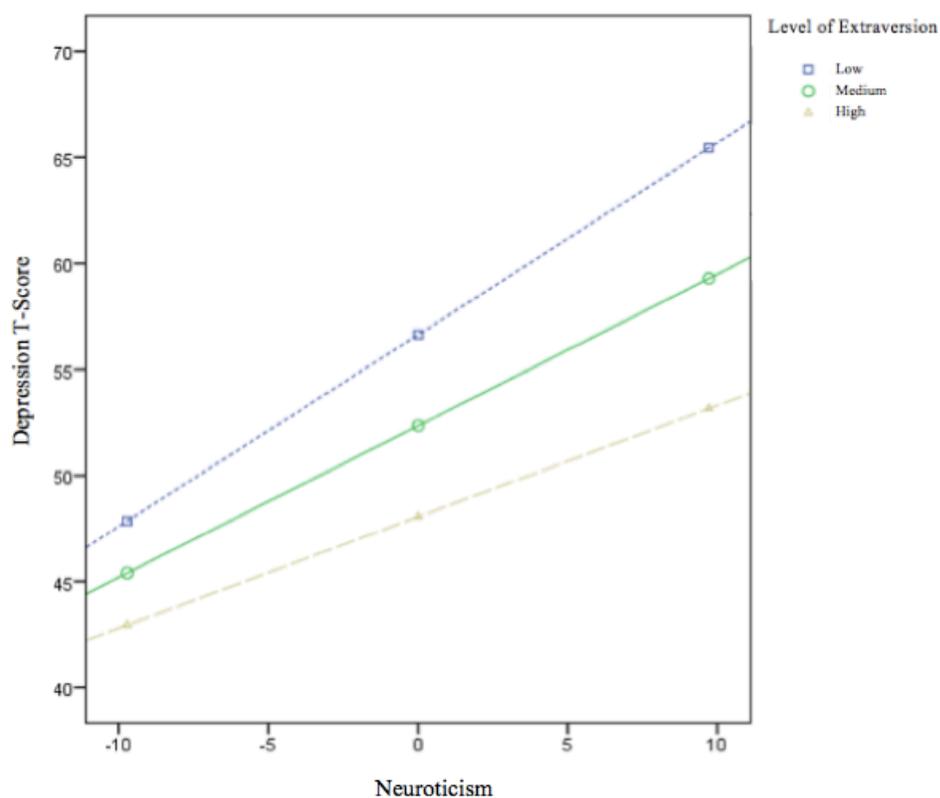
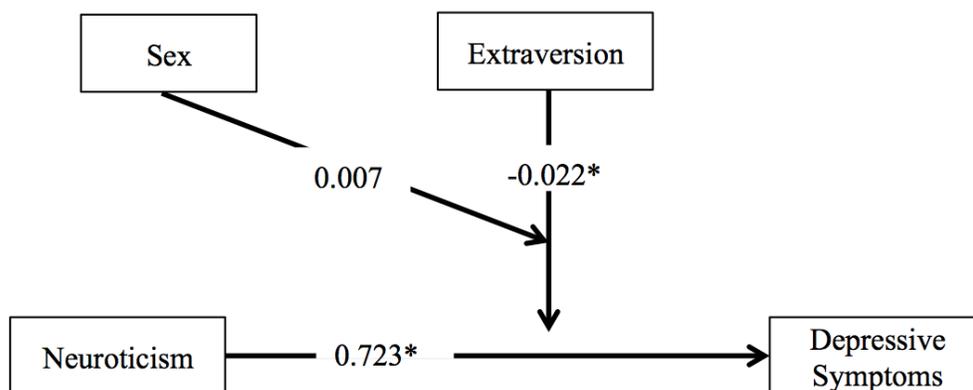


Figure 6: The interaction effect of extraversion and neuroticism on depression scores.



Note. * $p < .001$

Figure 7: PROCESS Model 3: Tripartite model with sex as an additional moderator.

used to create the necessary confidence intervals to determine if mediated moderation occurred.

For the current study, 5,000 samples were created. See Tables 11 through 13 for the results of this analysis.

Table 11

Unstandardized Regression Coefficients of Perceived Parent Support in Relation to Personality

Variables

	<i>b</i>	<i>SE b</i>	<i>R</i> ²	<i>Sig.</i>
Perceived Parent Support			0.480**	<.001
Neuroticism	-0.320**	0.048		<.001
Energy/Extraversion	0.576**	0.053		<.001
Energy/Extraversion X Neuroticism	0.008	0.004		.077

Note. ** $p < 0.01$

Table 12

Unstandardized Regression Coefficients of Perceived Classmate Support in Relation to Personality

Variables

	<i>b</i>	<i>SE b</i>	<i>R</i> ²	<i>Sig.</i>
Perceived Classmate Support			0.517**	<.001
Neuroticism	-0.246**	0.051		<.001
Energy/Extraversion	0.740**	0.055		<.001
Energy/Extraversion X Neuroticism	0.004	0.005		.381

Note. ** $p < 0.01$

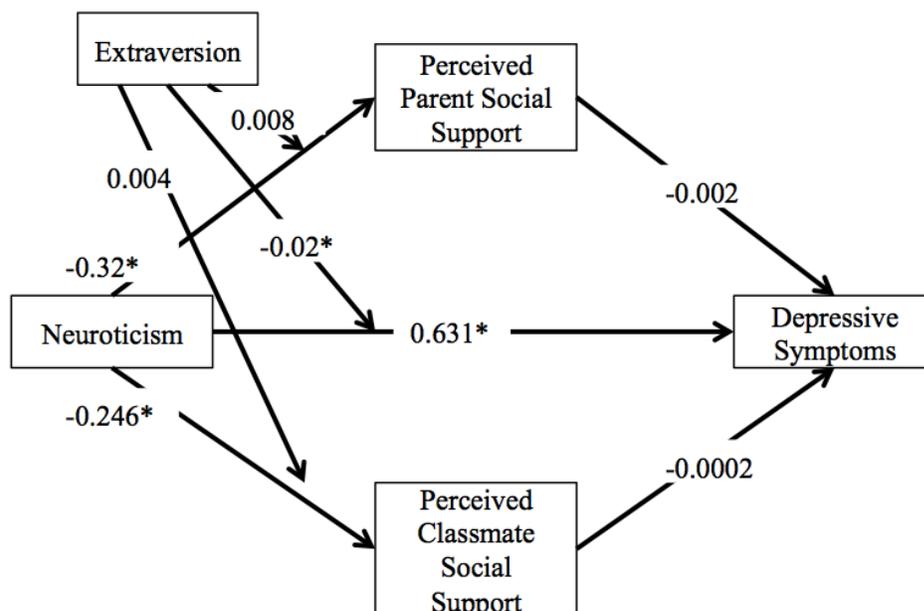
Table 13

Mediated Moderation: Indirect Effect of the Interaction Between Personality Variables on Depression Scores Through Perceived Support

	<i>b</i>	<i>SE b</i>	<i>95% CI</i>	
			<i>Lower</i>	<i>Upper</i>
Perceived Parent Support	-0.002	0.001	-0.004	0.0001
Perceived Classmate Support	-0.0002	0.0003	-0.002	0.0002

Note. ** $p < 0.01$

The interaction between neuroticism and extraversion did not predict perceived parent support ($b = .008$, $p = .077$) or perceived classmate support ($b = .004$, $p = .381$). The mediated moderation model was not supported for perceived parent support ($b = -.002$, $CI = -.004, .0001$) or perceived classmate support ($b = -.0002$, $CI = -.002, .0002$). Figure 8 shows a graphical representation of these results.



Note. * $p < .001$

Figure 8: PROCESS Model 8: Tripartite model with perceived social support as mediators.

CHAPTER 4

DISCUSSION

The current study was conducted to explore how personality and perceived social support were related to depression in a sample of early adolescent students. This study also investigated if perceived social support from parents and classmates mediates the relationship between personality and depression. The guiding theory throughout the study was the tripartite model (Clark & Watson, 1991). This model posits that high neuroticism is the factor underlying both anxiety and depression. In the model, what distinguishes these two disorders are physiological hyperarousal and positive emotionality (a lower-order trait of extraversion). High physiological hyperarousal and high neuroticism, according to this theory, is what characterizes anxiety. On the other hand, depression is characterized by high neuroticism and low positive emotionality. While this theory has received a considerable amount of support (Anthony et al., 2002; Lonigan et al., 1994; Lonigan et al., 2003; Mervielde et al., 2005; Phillips et al., 2002; Robins et al., 1996; Van den Akker et al., 2013), perceived social support from parents and classmates as a possible mediating factor has not been thoroughly researched. However, support from these sources is a factor that is related to both personality and depression in such a way that it could be a mediating factor within the tripartite model.

Although not many, some researchers have investigated how perceived social support, personality, and depression are associated (Finch & Graziano, 2001; Lewis et al., 2013; Wetter & Hankin, 2009). The studies these researchers conducted, however, had important limitations that

could have influenced their results such as how perceived social support was operationally defined, the fact that the studies did not differentiate between source of support, and, in one study, how the investigators measured satisfaction with support instead of the amount of support perceived. Given the importance of understanding correlates of mental health outcomes, the current study used the tripartite model as a framework to investigate how perceived social support from parents and classmates is related to depressive symptoms, how personality factors are related to depressive symptoms, whether extraversion could be the moderating factor between neuroticism and depressive symptoms within the tripartite model, and whether perceived social support mediated the relationship between personality and depressive symptoms.

Preliminary Analyses

First, preliminary analyses were conducted to determine if there were grade or sex differences on study variables. Seventh graders scored slightly higher than eighth graders on extraversion, males scored slightly higher than females on extraversion, and females scored higher than males on neuroticism. Previous research has found mixed results in terms of age differences on extraversion (Klimstra, Hale, Raaijmakers, Branje, & Meeus, 2009; Lehmann, Denissen, Allemand, & Penke, 2013; Soto et al., 2011) but girls typically score higher than boys in neuroticism (Lehmann et al., 2013; Soto et al., 2011), as found in the current study. On measures of perceived social support, there were no significant age or sex differences, which is inconsistent with previous research (Kerr, Preus, & King, 2006; Malecki & Elliott, 1999; Martinez, 2006). Finally, females had a slightly higher depression score than males. This is

consistent with previous research that suggests that sex differences in levels of depression begin to arise between ages 13 and 15 (Hyde, Mezulis, & Abramson, 2008).

Primary Analyses

An investigation of the relationship between perceived social support and depressive symptoms revealed that higher levels of perceived social support from both classmates and parents were related to lower levels of depressive symptoms. Furthermore, the relationship between perceived parent support and depressive symptoms was moderated by biological sex (biological sex did not moderate the relationship between perceived classmate support and depressive symptoms). That is, the negative relationship between perceived parent support and depressive symptoms was stronger for females than for males. This is similar with previous research that has found a negative relationship between perceived social support and depression (Galambos et al., 2004; Jia et al., 2009; Licitra-Kleckler & Waas, 1993; Patten et al., 1997; Rudasill et al., 2014; Tanigawa et al., 2011). It is interesting, though, because research that has found a significant difference between males and females in terms of perceived social support typically find that there is not a significant difference in perceived parent support but in other sources (Bokhorst, Sumter, & Westenberg, 2010; Demaray & Malecki, 2002a; Rueger et al., 2010). Results from the current study were partially consistent with predictions for this research question. That is, it was predicted that perceived social support from both sources would be negatively related to depressive symptoms but that biological sex would not be a moderator. Even though biological sex acted as a moderator, this does not mean that perceived social support is unimportant to males. As Rueger et al. (2016) explain, perceived social support has important outcomes for both males and females. The current study simply found that the

relationship between depressive symptoms and perceived parent support was stronger for females than it was for males.

Personality factors were also associated with levels of depressive symptoms in the current study. Depressive symptoms were negatively related to extraversion and positively related to neuroticism, which was consistent with the predictions for the current study and with previous research (Klimstra et al., 2010; Tackett, Kushner, et al., 2013; Van Leeuwen et al., 2007).

Furthermore, biological sex was not a moderator between extraversion and depressive symptoms but it was a moderator for the relationship between neuroticism and depressive symptoms. This was partially consistent with the predictions for the current study, which predicted that biological sex would not be a moderator between either personality variable and depressive symptoms. The moderating relationship could be due to the well-known relationship between biological sex and level of depressive symptoms. That is, the prevalence of depression within females is twice as high than in males in the adult population. This difference in depression between males and females arises between ages 13 and 15, which are included within the age range of the study sample (Hyde et al., 2008). Additionally, there is a significant difference between adult males and adult females in level of neuroticism, which is an underlying factor in depression (women typically have higher levels of neuroticism than men; Lehmann et al., 2013). Since this sex difference in depression appears around the age of the participants in the current study, it could also explain the moderating role of biological sex on neuroticism.

The guiding theory of the current study was the tripartite model (Clark & Watson, 1991). While the original model states a lower-order trait of extraversion (positive emotionality) is the moderating factor between neuroticism and depression, previous research has shown that the extraversion is also negatively related to depression (Klimstra et al., 2010; Tackett, Kushner, et

al., 2013; Van Leeuwen et al., 2007). Therefore, the current study investigated whether extraversion could play a moderating role in the association between neuroticism and depression scores. The current study found that extraversion did play a moderating role in the relationship between neuroticism and depression scores. That is, as the level of extraversion increased, the association of neuroticism with depression scores decreased. This result was consistent with the predictions of the current study and with previous research that supported the tripartite model (Anthony et al., 2002; Lonigan et al., 2003; Mervielde et al., 2005; Van den Akker et al., 2013). However, within the current study, the tripartite model was extended to include extraversion, not just positive emotionality. Also, it was found that biological sex did not play a moderating role within the tripartite model.

Up to this point, results of the current study supported previously established relationships between depression and personality and perceived social support (e.g., Klimstra et al., 2010; Rudasill et al., 2014; Tackett, Kushner, et al., 2013). The current study also supported a variation of the tripartite model in which extraversion was the moderating factor instead of positive emotionality. Each of these variables (neuroticism, extraversion, perceived social support, and depression) related to one another in such a way that perceived social support could be a mediating factor within the tripartite model. The current study found, however, that perceived social support from parents and classmates were not mediating factors within the relationship between depressive symptoms and the interaction between neuroticism and extraversion. These results suggest that, contrary to the predictions of the current study, the personality variables in the current study have a direct relationship to depression that is not explained by level of perceived social support.

The current study found that perceived social support was not a mediator within the tripartite model, which is consistent with previous research. Wetter and Hankin (2009) found support for the tripartite model in a sample of sixth to tenth graders and found that their conceptualization of perceived social support partially mediated the relationship between positive emotionality and depressive symptoms. They also found that stressors mediated the relationship between negative emotionality and depressive symptoms. The researchers found, however, that neither perceived social support nor stressors played a mediating role within the tripartite model. They suggested that this demonstrates equifinality inasmuch as individuals start at different points (high negative emotionality, low positive emotionality, a combination of the two) and arrive to the same endpoint (i.e., higher depressive symptoms). While their study suggests explanatory factors for those with high negative emotionality or low positive emotionality (stressors or low support, respectively), they conclude that there must be some other mechanism that explains depressive symptoms within individuals who fit the profile of the tripartite model.

Implications

The lack of evidence supporting the mediating role of perceived social support within the tripartite model could be a result of personality being a factor that is present in early childhood (Shiner & DeYoung, 2013; Tackett et al., 2012) and, therefore, has longstanding implications on internalizing disorders. Some theorists suggest that personality has a biological basis (see, for example, McCrae & Costa, 2008). If this is the case, the relationship between neuroticism, extraversion, and depression would also have a biological basis and it would be resistant to the effects of environmental factors, such as perceived social support. On the other hand, other

researchers believe that personality is malleable in childhood and shaped, in part, by interactions with others (see, for example, Caspi & Roberts, 2001). If this is so, the amount and type of perceived social support would surely have an impact on personality and, in turn, depressive symptoms, by the time children reached adolescence. Perhaps perceived social support does play a role in personality and depression but this happens in a different way than the tripartite model and at a much younger age.

Considered separately, personality and perceived social support each play an important role. Neither can be discounted because the current study and previous research have found that each are related to depression. However, perceived social support does not account for the relationship between personality and depression. Perhaps, instead of perceived social support mediating the relationship between personality and depression, personality mediates the relationship between perceived social support and depression. Geosling (2015) wondered whether the relationship between personality variables and perceived social support were due to actual lower/higher levels of perceived social support or if personality influenced how one perceives the actions of others. Indeed, one study found that those with higher levels of neuroticism perceived ambiguous stimuli as more hostile than those with lower levels of neuroticism (Chan et al., 2007), which provides evidence that one's personality (in this case, neuroticism) can have an impact on their perceptions. Since the perceived social support is primarily one's perception of support, it is not a leap to wonder if personality impacts perceptions of support. Put another way, personality could be the filter through which individuals see the world. Therefore, it could be that the relationship between perceived social support and depression is mediated by personality, or one's perceptions of the world.

The possible mediating role of personality in the relationship between perceived social support and depression is further supported by findings from other research that shows how neuroticism is related to interpersonal relationships. Evidence suggests that individuals with higher levels of neuroticism experience higher levels of interpersonal conflict, show more maladaptive coping strategies, and have poorer relationships with their parents when compared to those lower in neuroticism (Belsky et al., 2003; Bolger & Zuckerman, 1995; Ferguson, 2001; Gunthert, Cohen, & Armeli, 1999). If this is the case, one's level of neuroticism could account for the relationship between perceived social support and depression. That is, someone's low level of perceived social support from their peers or other important people in their lives could be partially explained by the impact that higher levels of neuroticism has on relationships.

Limitations

There are several limitations of the current study. First, the design of the study was a significant limitation. The students completed the surveys during their physical education class. Students sat in groups on the gym floor. If students thought that their peers could see their answers, this could have influenced their responses. Students were also required to sit on the floor during administration, which could have been uncomfortable and led to decreased effort to persevere through the extensive packet. Second, while the sample was relatively large, it was limited. It only included students from one suburban middle school and only two grades. A third limitation was that the surveys were not counterbalanced. The measures used in the current study were part of a larger survey packet. Students' responses could have been influenced by fatigue (e.g., cases being deleted because they did not complete a measure) or other factors. A fourth limitation is the use of self-report measures, which could introduce response bias. A final

limitation is that there could have been differences between those deleted from and those kept within the final sample in some unmeasured factor. For example, it is possible that those deleted from the final sample had a lower reading ability than those kept within the final sample. That is, those with a lower reading ability could have been deleted because they did not finish the survey. It is possible that individuals with a lower reading ability perceive different levels of support from parents or classmates.

Future Directions

Given the relationship between depression and personality and also the relationship between depression and perceived social support, future research on this topic should further investigate how perceived social support and personality interact in relation to depression. For example, personality could be the mediating factor in the relationship between perceived social support and depression. Before investigating how these three constructs may interact with one another, it may be prudent to take a step back and understand more fully how perceived social support and personality are associated. There is little research on how perceived social support and personality are associated in children and adolescents. This is especially true for children and adolescents in the United States. Not surprisingly, therefore, there has been little effort to explain why these constructs might relate to one another in certain ways and the possible implications. An interesting topic to research would be whether one's personality influences one's perception of social support. For example, could level of neuroticism affect someone's perceptions of socially supportive acts in the same way that it affects someone's perceptions of ambiguous stimuli? If so, does that impact outcomes such as depression? Another possibility is that individuals may actually be treated differently based on their personality. For example, someone

with higher levels of neuroticism might experience more interpersonal conflict and, therefore, people may demonstrate fewer socially supportive acts toward that person. Finally, given the many outcomes that are related to both perceived social support and personality along with the multifaceted nature of both constructs, future research should focus on how these factors relate to various outcomes within adolescence.

As discussed in the conceptualization of social support, the model developed by Tardy (1985) distinguishes between social support that is perceived as available and social support that is enacted, or used. The relationship between enacted social support and depression would be an interesting topic of future research. As Rueger et al. (2016) found, there are few studies that have looked at this relationship within an adolescent population. Interestingly, while enacted support is negatively related to depression, perceived support has a stronger negative relationship than does enacted support. However, this could have been influenced by the small number of studies that have been conducted in relationship to studies conducted with perceived social support. Therefore, a portion of future research on the relationship between social support and depression in adolescents should focus on the role of enacted social support.

Even though the current study did not find support for the primary research question, the results can inform how professionals work with children and adolescents. That is, those who work with children and adolescents should be aware of factors that may put individuals at-risk for negative outcomes. The current study, along with previous research, has shown that high levels of neuroticism (described as anxious, nervous, sad, and tense; John et al., 2008), low levels of extraversion (low in sociability, low in activity, negative emotionality; John et al., 2008), and/or low amounts of perceived social support from parents and classmates are each positively related to depressive symptoms. Within a school setting, teachers and other

professionals within the school can be mindful of students who display these characteristics.

Informal steps could be taken to possibly mitigate outcomes associated with these factors. For example, during certain activities, teachers could pair students who fit the previously mentioned profile with other, sociable students to possibly increase the amount of perceived classmate support. Or, teachers could increase the number of socially supportive acts toward such students to increase perceived teacher support.

General Summary

In summary, the current study found evidence that both personality and perceived social support are related to depression within an adolescent sample, adding to the extensive literature showing similar results. Furthermore, support for the tripartite model was found, extending the applicability of the theory to include extraversion. The main purpose of the current study, however, was not supported by the results. That is, perceived social support from parents and classmates were not found to be mediating factors within the tripartite model. Several alternative explanations were offered. For example, perhaps the interaction between personality and perceived social support takes place at a younger age than adolescence and this is associated, in turn, with depression. Another explanation is that personality could be the mediating factor between perceived social support and depression. Either way, future research is needed to better understand how personality and perceived social support may interact in adolescents and the potential explanatory factors within these interactions. Then, after the association between personality and perceived social support is better understood, future research could elucidate how these important constructs interact to predict other outcomes within adolescents.

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APPENDIX

STUDENT QUESTIONNAIRE PACKET, DAY ONE

PLEASE DO NOT WRITE IN THIS PACKET

Before answering the questions, look at the “Height” box. Please write the first three numbers of your school ID in these boxes. Then look at the “Weight” box. Please write the last three numbers of your school ID in these boxes. Also, please fill in the bubbles beneath each number. So, if you read across the “Height” and “Weight” boxes, it should be the same as your school ID.

For example, if the ID number is 123456, the 1 2 3 will go in the “Height” box and 4 5 6 will go in the “Weight” box

Height		
Ft	Inches	
1	2	3
⓪	⓪	⓪
●	①	①
②	●	②
③	③	●
④	④	④
⑤	⑤	⑤
⑥	⑥	⑥
⑦	⑦	⑦
⑧	⑧	⑧
⑨	⑨	⑨

Weight		
4	5	6
⓪	⓪	⓪
①	①	①
②	②	②
③	③	③
●	④	④
⑤	●	⑤
⑥	⑥	●
⑦	⑦	⑦
⑧	⑧	⑧
⑨	⑨	⑨

Please ask for help if you have a question or don't understand something.

Do not skip any sentences. Remember, there are no “right” or “wrong” answers and all of your answers will be kept private.

Please turn to the next page and answer the questions. Thank you!

My Parent(s)...	How Often?					
	Never	Almost Never	Some of the Time	Most of the Time	Almost Always	Always
1...show they are proud of me.	A	B	C	D	E	F
2...understand me.	A	B	C	D	E	F
3...listen to me when I need to talk.	A	B	C	D	E	F
4...make suggestions when I don't know what to do.	A	B	C	D	E	F
5...give me good advice.	A	B	C	D	E	F
6...help me solve problems by giving me information.	A	B	C	D	E	F
7...tell me I did a good job when I do something well.	A	B	C	D	E	F
8...nicely tell me when I make mistakes.	A	B	C	D	E	F
9...reward me when I've done something well.	A	B	C	D	E	F
10...help me practice my activities.	A	B	C	D	E	F
11...take time to help me decide things.	A	B	C	D	E	F
12...get me many of the things I need.	A	B	C	D	E	F
My Teacher(s)...	How Often?					
	Never	Almost Never	Some of the Time	Most of the Time	Almost Always	Always
13...cares about me.	A	B	C	D	E	F
14...treats me fairly.	A	B	C	D	E	F
15...makes it okay to ask questions.	A	B	C	D	E	F
16...explains things that I don't understand.	A	B	C	D	E	F
17...shows me how to do things.	A	B	C	D	E	F
18...helps me solve problems by giving me information.	A	B	C	D	E	F
19...tells me I did a good job when I've done something well.	A	B	C	D	E	F
20...nicely tells me when I make mistakes.	A	B	C	D	E	F
21...tells me how well I do on tasks.	A	B	C	D	E	F
22...makes sure I have what I need for school.	A	B	C	D	E	F
23...takes time to help me learn to do something well.	A	B	C	D	E	F
24...spends time with me when I need help.	A	B	C	D	E	F

My Classmates...	How Often?					
	Never	Almost Never	Some of the Time	Most of the Time	Almost Always	Always
25...treat me nicely.	A	B	C	D	E	F
26...like most of my ideas and opinions.	A	B	C	D	E	F
27...pay attention to me.	A	B	C	D	E	F
28...give me ideas when I don't know what to do.	A	B	C	D	E	F
29...give me information so I can learn new things.	A	B	C	D	E	F
30...give me good advice.	A	B	C	D	E	F
31...tell me I did a good job when I've done something well.	A	B	C	D	E	F
32...nicely tell me when I make mistakes.	A	B	C	D	E	F
33...notice when I have worked hard.	A	B	C	D	E	F
34...ask me to join activities.	A	B	C	D	E	F
35...spend time doing things with me.	A	B	C	D	E	F
36...help me with projects in class.	A	B	C	D	E	F

My Close Friend...	How Often?					
	Never	Almost Never	Some of the Time	Most of the Time	Almost Always	Always
37...understands my feelings.	A	B	C	D	E	F
38... sticks up for me if others are treating me badly.	A	B	C	D	E	F
39... spends time with me when I'm lonely.	A	B	C	D	E	F
40...gives me ideas when I don't know what to do.	A	B	C	D	E	F
41...gives me good advice.	A	B	C	D	E	F
42...explains things that I don't understand.	A	B	C	D	E	F
43...tells me he or she likes what I do.	A	B	C	D	E	F
44...nicely tells me when I make mistakes.	A	B	C	D	E	F
45...nicely tells me the truth about how I do on things.	A	B	C	D	E	F
46...helps me when I need it.	A	B	C	D	E	F
47...shares his or her things with me.	A	B	C	D	E	F
48...takes time to help me solve my problems.	A	B	C	D	E	F

How often do you <u>do</u> these things, <u>think</u> these things, or <u>feel</u> that these things happen to you?						
CAREFUL! These are rated (A) to (E)		Almost Never	Sometimes	Almost Always		
49.	I like to spend time with other people.	A	B	C	D	E
50.	I share my things with other people.	A	B	C	D	E
51.	I do my work carefully.	A	B	C	D	E
52.	I get nervous for silly things.	A	B	C	D	E
53.	I know a lot of things.	A	B	C	D	E
54.	I am in a bad mood.	A	B	C	D	E
55.	I enjoy working hard.	A	B	C	D	E
56.	I get into heated arguments with others.	A	B	C	D	E
57.	I like to compete with others.	A	B	C	D	E
58.	I daydream a lot.	A	B	C	D	E
59.	I am honest and kind with others.	A	B	C	D	E
60.	It is easy for me to learn what is taught at school.	A	B	C	D	E
61.	I know when others need my help.	A	B	C	D	E
62.	I like to be active.	A	B	C	D	E
63.	I get angry easily.	A	B	C	D	E
64.	I like to give gifts.	A	B	C	D	E
65.	I argue with others.	A	B	C	D	E
66.	When the teacher asks questions I am able to give the correct answer.	A	B	C	D	E
67.	I like to be around others.	A	B	C	D	E
68.	I get very involved in the things I do and I do them to the best of my ability.	A	B	C	D	E
69.	If someone does something to hurt me, I forgive him/her.	A	B	C	D	E
70.	I concentrate on my work in class.	A	B	C	D	E

How often do you <u>do</u> these things, <u>think</u> these things, or <u>feel</u> that these things happen to you?						
		Almost Never	Sometimes	Almost Always		
71.	It is easy for me to tell others what I think.	A	B	C	D	E
72.	I like to read books.	A	B	C	D	E
73.	When I finish my homework, I check it many times to make sure I did it correctly.	A	B	C	D	E
74.	I say what I think.	A	B	C	D	E
75.	I am nice to all of my classmates.	A	B	C	D	E
76.	I respect and follow the rules.	A	B	C	D	E
77.	My feelings get hurt easily.	A	B	C	D	E
78.	When the teacher explains something I understand immediately.	A	B	C	D	E
79.	I am sad.	A	B	C	D	E
80.	I treat others with kindness.	A	B	C	D	E
81.	I like scientific TV shows.	A	B	C	D	E
82.	If I make an appointment I keep it.	A	B	C	D	E
83.	I find things to do so that I will not get bored.	A	B	C	D	E
84.	I like to watch news on TV, and to know what happens in the world.	A	B	C	D	E
85.	My room is neat and organized.	A	B	C	D	E
86.	I am polite when I talk to others.	A	B	C	D	E
87.	If I want to do something, I cannot wait and I have to be able to do it immediately.	A	B	C	D	E
88.	I like to talk with others.	A	B	C	D	E
89.	I am not patient.	A	B	C	D	E
90.	I am able to convince other people to agree with what I think.	A	B	C	D	E
91.	I am able to make up new games and things to do.	A	B	C	D	E
92.	When I start to do something I have to finish it no matter what.	A	B	C	D	E

How often do you <u>do</u> these things, <u>think</u> these things, or <u>feel</u> that these things happen to you?						
		Almost Never	Sometimes	Almost Always		
93.	If a classmate is having trouble I help him/her.	A	B	C	D	E
94.	I am able to solve mathematical problems.	A	B	C	D	E
95.	I trust others.	A	B	C	D	E
96.	I like to keep all my school things neat and organized.	A	B	C	D	E
97.	I lose my calm easily.	A	B	C	D	E
98.	When I say something, others listen to me and do what I say.	A	B	C	D	E
99.	I treat even the people I dislike with kindness.	A	B	C	D	E
100.	I like to learn new things.	A	B	C	D	E
101.	I always finish my homework before I play.	A	B	C	D	E
102.	I get irritated when things are difficult for me.	A	B	C	D	E
103.	I like to joke around.	A	B	C	D	E
104.	I almost never move my attention away from what I am doing.	A	B	C	D	E
105.	I make friends easily.	A	B	C	D	E
106.	I cry.	A	B	C	D	E
107.	I would like very much to travel and learn about other countries.	A	B	C	D	E
108.	I think other people are good and honest.	A	B	C	D	E
109.	I worry about silly things.	A	B	C	D	E
110.	I understand things immediately.	A	B	C	D	E
111.	I am happy and active.	A	B	C	D	E
112.	I let other people use my things.	A	B	C	D	E
113.	I take care of my responsibilities.	A	B	C	D	E

CAREFUL! These are rated (A) to (B)

		True	False
114.	Nothing goes my way	A	B
115.	I used to be happier	A	B
116.	I don't care about school	A	B
117.	My classmates don't like me	A	B
118.	Nothing is fun anymore	A	B
119.	Nobody ever listens to me	A	B
120.	My teacher understands me	A	B
121.	I just don't care anymore	A	B
122.	I don't like thinking about school	A	B
123.	I get along well with my parents	A	B
124.	I don't seem to do anything right	A	B
125.	Other children don't like to be with me	A	B
126.	Nothing ever goes right for me	A	B
127.	My teacher cares about me	A	B
128.	Nothing about me is right	A	B

CAREFUL! These are rated (A) to (D)

	Never	Sometimes	Often	Almost Always
129. My school feels good to me	A	B	C	D
130. I am proud of my parents	A	B	C	D
131. Other kids hate to be with me	A	B	C	D
132. <u>I feel like my life is getting worse and worse</u>	A	B	C	D
133. School is boring	A	B	C	D
134. My teacher trusts me	A	B	C	D
135. <u>I feel depressed</u>	A	B	C	D
136. Teachers make me feel stupid	A	B	C	D
137. <u>No one understands me</u>	A	B	C	D
138. I like going places with my parents	A	B	C	D
139. I feel that nobody likes me	A	B	C	D
140. <u>I feel sad</u>	A	B	C	D
141. I get bored in school	A	B	C	D
142. Teachers look for the bad things that you do	A	B	C	D
143. My parents are easy to talk to	A	B	C	D
144. Teachers are unfair	A	B	C	D
145. My mother and father like my friends	A	B	C	D
146. People think I am fun to be with	A	B	C	D
147. My mother and father help me if I ask them to	A	B	C	D
148. I feel like I want to quit school	A	B	C	D
149. My teacher is proud of me	A	B	C	D
150. I am slow to make new friends	A	B	C	D
151. My parents listen to what I say	A	B	C	D
152. I like to be close to my parents	A	B	C	D
153. My teachers want too much	A	B	C	D
154. I am liked by others	A	B	C	D
155. My parents trust me	A	B	C	D
156. I hate school	A	B	C	D
157. My parents are proud of me	A	B	C	D
158. My teacher gets mad at me for no good reason	A	B	C	D

159. What is your gender? (select one)	
A- Male	B- Female
160. What is your grade? (select one)	
A-7th	B-8th
161. What is your age? (select one)	
A- 11 or younger	D- 14
B- 12	E- 15 or older
C- 13	
162. What is/are your ethnicity(ies)? (select all that apply)	
A- African American	D- Hispanic/Latino(a)
B- Asian	E- Native American
C- White	F- Other
163. What is the month of your birthday? (select one)	
A- January or February	F- July
B- March	G- August
C- April	H- September
D- May	I- October
E- June	J- November or December
164. What is the year of your birthday? (select one)	
A- 1997 or earlier	E- 2001
B- 1998	F- 2002
C- 1999	G- 2003 or later
D- 2000	
165. What do you think your grades in school are right now? (select one)	
A- Mostly As	D- Mostly Ds
B- Mostly Bs	E- Mostly Fs
C- Mostly Cs	

THINGS THAT HAPPEN TO ME CAREFUL! These are rated (A) to (E)	Never	Almost Never	Sometimes	Almost all The Time	All The Time
166. How often does another peer give you help when you need it?	A	B	C	D	E
167. How often do you get hit by another peer at school?	A	B	C	D	E
168. How often do other peers leave you out or exclude you from activities when they are angry with you?	A	B	C	D	E
169. How often does another peer yell at you and call you mean names?	A	B	C	D	E
170. How often does another peer try to cheer you up when you feel sad or upset?	A	B	C	D	E
171. How often does a peer try to get even with you by excluding you from their group of friends?	A	B	C	D	E
172. How often do you get pushed or shoved by another peer?	A	B	C	D	E
173. How often does another peer do something that makes you feel happy?	A	B	C	D	E
174. How often does a peer spread rumors or gossip about you to make others not like you anymore?	A	B	C	D	E
175. How often does a peer start a physical fight with you?	A	B	C	D	E
176. How often does another peer threaten to not hang out with you unless you do what they want you to do?	A	B	C	D	E
177. How often does another peer say something nice to you?	A	B	C	D	E
178. How often does a peer try to keep others from hanging out with you by saying mean things about you?	A	B	C	D	E
179. How often does another peer threaten to beat you up if you don't do what they want you to do?	A	B	C	D	E
180. How often do other peers let you know they care about you?	A	B	C	D	E