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Relationship among schizoid and schizotypal personality traits and social support on PTSD symptom severity

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RELATIONSHIP AMONG SCHIZOID AND SCHIZOTYPAL PERSONALITY TRAITS AND SOCIAL SUPPORT ON PTSD SYMPTOM SEVERITY

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Abstract

Posttraumatic stress disorder (PTSD) is a common disorder in the general population with a lifetime prevalence of 7.8% (females 10.4%; males 5.0%; Kessler et al, 1995). PTSD can become debilitating and can significantly affect an individual's social and occupational functioning. Consequently, it is essential to better understand the factors associated with development and maintenance of PTSD. Research has documented the benefits of social support in the prevention and treatment of PTSD. However, it is unclear whether other variables moderate the effectiveness and desirability of social support. Currently, the empirical literature examining the role of potential moderators of social support (e.g. specific personality characteristics) is sparse. The goal of this study was to examine if two personality variables, schizoid and schizotypal personality traits, moderate the relationship between social support and PTSD. It was hypothesized that individuals who scored high on measures of these personality traits will report less benefit from social support following a traumatic event than individuals who scored low on measures of these traits. Participants (n = 386) were recruited from undergraduate classes at a moderate sized Midwestern university via in-class presentations and posted flyers. Results indicate that perceived social support is associated with lower PTSD symptom severity. Further, both schizoid and schizotypal personality traits are associated with elevated severity of PTSD, while schizotypal personality traits are associated with increased trauma exposure. Finally, schizoid personality traits significantly moderate the relationship between perceived social support and PTSD symptom severity.

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Review of Related Literature

Introduction

A considerable body of research has examined the benefits of social support in the reduction of posttraumatic stress disorder (PTSD) symptomology. The consensus is that lower levels of social support are associated with more severe symptoms of PTSD. This finding has been observed in a broad array of samples including police officers in New Zealand (Stephens, Long, & Miller, 1997) and breast cancer survivors in the United States (Andrykowsky & Cordova, 1998). The results of a recent meta-analysis support the association between social support and PTSD symptomology as well (Ozer, Best, Lipsey, & Weiss, 2008). Ozer et al. (2008), using data from 11 studies, found a small to moderate negative correlation between perceived social support following a traumatic event and PTSD symptomology. This negative relationship suggests PTSD symptoms are more severe when individuals feel as though social support is unavailable to them.

The relationship between support and PTSD may also be bidirectional. That is, persons with more severe symptoms of PTSD symptomology may elicit less social support than a non-PTSD population. There is a strong negative correlation between PTSD symptoms and the amount, and quality, of social support later in life due to the increase in interpersonal difficulties associated with the symptoms of PTSD (King, Taft, King, Hammond, & Stone, 2006).

Despite the extensive body of research outlining the benefits of social support following trauma, this support may not be universally helpful and may be detrimental to certain individuals. Recent research suggests that the amount of benefit one may derive from social support may be a function of one's personal predisposition to either interdependence or independence. Individuals who value social interdependence tend to derive more satisfaction

from knowing social support is available to them than do individuals who value social independence (Uchida, Kitayama, Mesquita, Reyes, & Morling 2008). Conversely, individuals who exhibit high levels of desire for social isolation or derive little pleasure from social activities may find social support ineffective or even harmful (Horan, Brown, & Blanchard, 2007). Individuals who score high on measures of schizoid and schizotypal personality traits tend to isolate themselves from social contact, find little pleasure in social activities, and are the prototypical examples of individuals who may not benefit from increased social support (Horan et al., 2007). These suppositions lend support to the notion that the benefits of, and desire for, social support following trauma may not be universal. This study examined the potential moderating effects of schizoid and schizotypal personality traits on the effectiveness of social support for individuals exhibiting PTSD symptomology.

The literature review that follows will describe PTSD and the effects of social support and social networks on PTSD symptomology. In addition, the review will describe both schizoid and schizotypal personality traits and the literature suggesting that these traits may moderate the effectiveness of social support. Following a review of the relevant literature, data from the current study are presented examining the relationship between schizoid and schizotypal personality traits and social support, as well as the possible moderating effects of these personality traits on the relationship between social support and PTSD symptom severity.

Discussion of Posttraumatic Stress Disorder (PTSD) and Social Support

Trauma exposure is a common occurrence in the United States, with 60.7% of men and 51.2% of women reporting that they experienced a traumatic event at some point in their lifetimes (Kessler, Sonnega, Bromet, & Hughes, 1995). Although the traumatic events individuals experience may be quite different, any one of these events may lead to significant

long-term impairment, including the development of PTSD. PTSD is an anxiety disorder characterized by symptoms related to avoidance of trauma related stimuli, hyperarousal, and re-experiencing of traumatic events. Lifetime prevalence of PTSD in the United States is estimated to be between 6.8% and 7.8% (Kessler et al., 2005). For a complete listing of the DSM-IV-TR diagnostic criteria of PTSD, refer to Table 1 (American Psychiatric Association (APA), 2000):

Table 1
DSM-IV-TR Diagnostic Criteria for Posttraumatic Stress Disorder (PTSD)

A. The person has been exposed to a traumatic event in which both of the following have been present:

1. The person experienced, witnessed, or was confronted with an event that involved actual or threatened death or serious injury, or a threat to the physical integrity of self or others
2. The person's response involved fear, helplessness, or horror. **Note:** In children, this may be expressed instead by disorganized or agitated behavior.

B. The traumatic event is persistently re-experienced in one (or more) of the following ways:

1. Recurrent and intrusive distressing recollections of the event, including images, thoughts, or perceptions. **Note:** In young children, repetitive play may occur in which themes or aspects of the trauma are expressed.
2. Recurrent distressing dreams of the event. **Note:** In children, there may be frightening dreams without recognizable content.
3. Acting or feeling as if the traumatic event were recurring (includes a sense of reliving the experience, illusions, hallucinations, and dissociative flashback episodes, including those that occur upon awakening or when intoxicated). Note: In young children, trauma-specific reenactment may occur.
4. Intense psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event.
5. Physiological reactivity on exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event.

C. Persistent avoidance of stimuli associated with the trauma and numbing of general responsiveness (not present before the trauma), as indicated by three (or more) of the following:

1. Efforts to avoid thoughts, feelings, or conversations associated with the trauma
2. Efforts to avoid activities, places, or people that arouse recollections of the trauma
3. Inability to recall an important aspect of the trauma
4. Markedly diminished interest or participation in significant activities
5. Feeling of detachment or estrangement from others
6. Restricted range of affect (e.g., unable to have loving feelings)
7. Sense of a foreshortened future (e.g., does not expect to have a career, marriage, children, or a normal life span)***

D. Persistent symptoms of increased arousal (not present before the trauma), as indicated by two (or more) of the following:

1. Difficulty falling or staying asleep
2. Irritability or outbursts of anger
3. Difficulty concentrating

4. Hyper vigilance
5. Exaggerated startle response.

F. Duration of the disturbance (symptoms in Criteria B, C, and D) is more than one month.

G. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.

Note: Items followed by asterisks have been removed from the proposed DSM-V diagnostic criteria

Currently, the APA DSM-5 work group on Trauma and stress-related disorders is working to develop new diagnostic criteria for PTSD. For a complete listing of the proposed DSM-5 diagnostic criteria for PTSD, please refer to Table 2 reproduced below (APA DSM-5 Development Team, 2010).

Table 2
Proposed DSM-5 Diagnostic Criteria for Posttraumatic Stress Disorder (PTSD)

A. The person was exposed to one or more of the following event(s): death or threatened death, actual or threatened serious injury, or actual or threatened sexual violation, in one or more of the following ways:

1. Experiencing the event(s) him/herself
2. Witnessing, in person, the event(s) as they occurred to others
3. Learning that the event(s) occurred to a close relative or close friend; in such cases, the actual or threatened death must have been violent or accidental
4. Experiencing repeated or extreme exposure to aversive details of the event(s) (e.g., first responders collecting body parts; police officers repeatedly exposed to details of child abuse); this does not apply to exposure through electronic media, television, movies, or pictures, unless this exposure is work related.

B. Intrusion symptoms that are associated with the traumatic event(s) (that began after the traumatic event(s)), as evidenced by 1 or more of the following:

1. Spontaneous or cued recurrent, involuntary, and intrusive distressing memories of the traumatic event(s). **Note:** In children, repetitive play may occur in which themes or aspects of the traumatic event(s) are expressed.
2. Recurrent distressing dreams in which the content and/or affect of the dream is related to the event(s). **Note:** In children, there may be frightening dreams without recognizable content.
3. Dissociative reactions (e.g., flashbacks) in which the individual feels or acts as if the traumatic event(s) were recurring (Such reactions may occur on a continuum, with the most extreme expression being a complete loss of awareness of present surroundings.) **Note:** In children, trauma-specific reenactment may occur in play.
4. Intense or prolonged psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event(s)
5. Marked physiological reactions to reminders of the traumatic event(s)

C. Persistent avoidance of stimuli associated with the traumatic event(s) (that began after the traumatic event(s)), as evidenced by efforts to avoid 1 or more of the following:

1. Avoids internal reminders (thoughts, feelings, or physical sensations) that arouse recollections of the traumatic event(s)
2. Avoids external reminders (people, places, conversations, activities, objects, situations) that arouse recollections of the traumatic event(s).

D. Negative alterations in cognitions and mood that are associated with the traumatic event(s) (that began or worsened after the traumatic event(s)), as evidenced by 3 or more of the following: **Note**: In children, as evidenced by 2 or more of the following**:**

1. Inability to remember an important aspect of the traumatic event(s) (typically dissociative amnesia; not due to head injury, alcohol, or drugs).
2. Persistent and exaggerated negative expectations about one's self, others, or the world (e.g., "I am bad," "no one can be trusted," "I've lost my soul forever," "my whole nervous system is permanently ruined," "the world is completely dangerous")***
3. Persistent distorted blame of self or others about the cause or consequences of the traumatic event(s)
4. Pervasive negative emotional state -- for example: fear, horror, anger, guilt, or shame***
5. Markedly diminished interest or participation in significant activities.
6. Feeling of detachment or estrangement from others.
7. Persistent inability to experience positive emotions (e.g., unable to have loving feelings, psychic numbing)***

E. Alterations in arousal and reactivity that are associated with the traumatic event(s) (that began or worsened after the traumatic event(s)), as evidenced by 3 or more of the following: **Note**: In children, as evidenced by 2 or more of the following:

1. Irritable or aggressive behavior
2. Reckless or self-destructive behavior***
3. Hypervigilance
4. Exaggerated startle response
5. Problems with concentration
6. Sleep disturbance -- for example, difficulty falling or staying asleep, or restless sleep.

F. Duration of the disturbance (symptoms in Criteria B, C, D and E) is more than one month.

G. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.

H. The disturbance is not due to the direct physiological effects of a substance (e.g., medication or alcohol) or a general medical condition (e.g., traumatic brain injury, coma).

Note: Items followed by asterisks are new items contained in the proposed DSM-5 diagnostic criteria for PTSD

Although many of the diagnostic criteria for PTSD in the DSM-IV-TR and the proposed DSM-5 are identical, some significant changes are evident. Most importantly, criterion A2 in the DSM-IV-TR (the persons response [to the event] involved fear, helplessness, or horror) has been eliminated in the proposed diagnostic criteria. This decision is based on the finding that those who do and those who do not meet criterion A2 do not differ substantially in symptom presentation (Creamer, McFarlane, & Burgess, 2005; Friedman, Resick, Bryant, & Brewin, 2011; O'Donnell, Creamer, McFarlane, Silove, & Bryant, 2008; Rizvi, Kaysen, Gutner, Griffen, & Resick, 2008). In addition, the proposed DSM-5 revision divides the DSM-IV-TR category of "Avoidance" into two categories: "Avoidance" and "Negative alterations in cognition" to reflect findings from factor analytic studies suggesting that two 4-factor models better capture the nature of the PTSD construct. One of these models is labeled the 4-factor *numbing* model and is composed of re-experiencing, active avoidance, emotional numbing, and hyperarousal (King, Leskin, King, & Weathers, 1998). The second model is labeled the 4-factor *dysphoria* model and is composed of re-experiencing, avoidance, dysphoria, and hyperarousal (Simms, Watson, & Doebbeling, 2002). The DSM-5 symptom category labeled "Negative alterations in mood and emotion" is no doubt designed to reflect the emotional numbing (King et al., 1998) and dysphoria (Simms et al., 2002) factors proposed in the two models of PTSD. Furthermore, the DSM-IV-TR category of "increased arousal" has been changed to "alterations in arousal" illustrating the potential for an individual's reactivity to either increase or decrease following a traumatic event. Finally, the proposed DSM-5 PTSD criteria include four new criteria (negative expectations about one's self, others, or the world; pervasive negative emotional state; persistent inability to experience positive emotions; reckless or self-destructive behavior) and eliminated one criterion (sense of a foreshortened future) when compared to the DSM-IV-TR (APA, 2012).

Predictors of and Risk factors for PTSD

A number of demographic variables including sex, age, and race are predictive of the development of PTSD. The prevalence of PTSD is significantly higher among females (10.4%) than among males (5.0%). This is somewhat surprising given more males report they have experienced a traumatic event (60.7%) than females (51.2%; Kessler, Berglund, Demler, Jin, Merikangus, & Walters, 2005). This relationship has been established across many trauma types (Brewin et al., 2000), but is particularly salient in cases of assault. Females may be at elevated risk for PTSD development due to the significantly higher incidence rate of assaultive violence against women (36%) relative to similar types of violence against men (6%; Breslau, 2002). Furthermore, women who experience assaultive violence are at greater risk for developing PTSD following exposure to a second traumatic event trauma than men are (Breslau & Anthony, 2007). It should be noted that independent of event type, males exhibit more resilience following trauma than females do (Digrande, Perrin, Thorpe, Thalji, Murphy, Wu, Farfel, Brackbill, 2008; Hobfoll, Palmieri, Johnson, Canetti-Nisim Hall, Galea, 2009).

In addition to sex differences, the existing body of literature suggests that an individual's age is also associated with PTSD development and severity; however, results of this research are somewhat mixed. Several studies have found that trauma exposure at a younger age is predictive of more severe PTSD symptomology (Green, Korol, Grace, Vary, Leonard, Gleser, Smitson-Cohen, 1991). However, several other studies found that age at the time of a traumatic event is unrelated to development of PTSD (Breslau, Chilcoat, Kessler, & Davis, 1999; van der Kolk, Roth, Pelcovitz, Sunday, & Spinazzola, 2005). Findings from a meta-analysis of risk factors for PTSD conducted by Brewin and colleagues' indicate that age is significantly associated with PTSD in certain groups (men) but not in others (women, civilian samples)

(Brewin et al., 2000). When taken together, the data suggest that age may influence the development and/or severity of PTSD symptoms. However, these effects are likely to be moderated by other variables such as sex and characteristics of the trauma.

The influence of race is also important to consider when examining factors that may influence the development of PTSD. Individuals who endorsed minority racial status (i.e. non-European American) experience more severe PTSD symptomology (Breslau et al., 1998; Digrande et al., 2008; Galea, Ahern, Resnick, Kilpatrick, Bucuvalas, Gold, Vlahov, 2002; Hobfall et al., 2009) and higher rates of trauma exposure (Breslau et al., 1998; Kessler et al., 1995) than European Americans. Brewin and colleagues (2000) also examined race in their meta analysis of risk factors associated with PTSD and found that race (defined dichotomously as White v. Non-White) was a significant predictor of PTSD, albeit weak. It should be noted that racial minority status is not universally found to be a risk factor for trauma exposure. For example, in a study of victims of Hurricane Hugo, Norris (1992) found African Americans reported fewer lifetime traumatic events than European Americans. Furthermore, several studies have found the elevated risk for PTSD associated with minority status disappears after controlling for socioeconomic status. This has been found in studies of Vietnam Veterans (Green, Grace, Lindy, Gleser, & Leonard, 1990; Kulka et al., 1990), women (Vogel & Marshall, 2001), and individuals living in dangerous neighborhoods (Alim, Charney, & Mellman, 2006).

Other factors in addition to sex, age, and racial/ethnic background are integral in the development of PTSD, including severity of the event (Kilpatrick et al., 1998; Ullman & Filipas, 2005); duration of the traumatic event (Shalev et al., 1996); lower level of education (Ullman & Filipas, 2005); type of traumatic event (Breslau et al., 1999); and the perceived danger associated with the trauma (Ozer, Best, Lipsey, & Weiss, 2003). However, one of the strongest predictors of PTSD development following a traumatic event is the amount of social support an individual

believes to be available and how much support the individual receives (Guay, Billette, & Marchand, 2006; Scarpa, Haden, Hurley, 2006; Ozer, Best, Lipsey, & Weiss, 2008).

Social Support

Social support may be viewed as "the perception or experience that one is loved and cared for, esteemed and valued, and part of a social network of mutual assistance and obligations (Taylor, Sherman, Kim, Jarcho, Takagi, & Dunagan 2004). Social support may be provided by family members, friends, significant others, co-workers, or any individual or group with which an individual may be associated and may serve to help minimize some of the psychological and emotional consequences of trauma exposure as well as potential PTSD development.

Social support is often parsed into two related but distinct constructs: perceived support and received support. Perceived social support is defined as aid that an individual believes would be available if needed (Procidano & Heller, 1983). Received social support refers to the social support actually received by an individual (Wills & Shinar, 2000).

The extant literature suggests there are substantial individual differences regarding individual's beliefs about the availability and receipt of social support. For instance, sex differences are quite apparent when examining perceived social support. Social support is perceived to be more available by women (Tam, Foo, & Lee, 2011), and women exhibit more self-efficacy beliefs regarding social support (Colodro, Godoy, & Godoy, 2010). Sex and personality traits may interact in complex ways to predict perceived support. For example, at low levels of neuroticism, women report greater overall support than men, but, as neuroticism levels rise, sex differences in social support disappear (Swickert & Taylor, 2010). Furthermore, women with high levels of extraversion and low levels of neuroticism perceive social support to be more available relative to women with lower levels of extraversion and higher levels of

neuroticism (Kitamura, Watanabe, Takara, Hiyama, Yasumiya, & Fujihara, 2002). Other variables appear to moderate the relationship between sex and social support. Men and women who are more conscientious and extroverted expend more effort to retain socially supportive relationships (Cukrowicz, Franzese, Thorp, Cheavens, Lynch, 2008). Furthermore, an individual's feelings about one's self appear to be associated with social support. Individuals who have higher self-esteem report more support seeking behavior than individuals with lower self-esteem (Caldwell & Reinhart, 1988).

Perception of *quality* support is also important to consider when evaluating the beneficial aspects of social support. Individuals rate benefits associated with social support based on the *quality* of interpersonal relationships more so than on the *quantity* of social relationships (Kitamura et al., 2002) suggesting that quality of social support is pivotal in determining the effectiveness of social support as a protective factor. Although perception of the quality of support may be more predictive of the benefit one may derive, reception of support is not irrelevant. Individuals who have more support resources available for their use report fewer symptoms of depression and anxiety than those who do not have these resources (Zimet, Dahlem, Zimet, & Farley, 1988).

Relationship among PTSD, Social Networks, and Social Support

There is an extensive body of literature examining the relationship between social support and PTSD symptomology. The literature indicates both received and perceived social support have beneficial effects for individuals following trauma. However, the benefits of perceived social support are more robust. For example, following Hurricane Hugo, Norris and Kaniasty (1996) found the majority of PTSD symptom severity related to the event could be explained by a reduction in perceived social support. Furthermore, a recent meta-analysis suggests that, while

both received and perceived social support have a moderating effect on the relationship between trauma exposure and mental health, the perception, rather than the receipt, of social support has a stronger effect on the mental health outcomes (Prati & Peitrantoni, 2010). Norris and Kaniasty's (1996) findings also echo the superiority of perceived over received social support as a protective factor against PTSD. Results indicated that the effects of received social support are mediated by the amount of support individuals perceive to be available and that the loss in perceived, not received, social support is responsible for the majority of psychological stress following a natural disaster (Kaniasty & Norris, 1993; Norris et al, 2002; Norris & Kaniasty, 1996). Empirical support for the benefits of received social support, however, are not nearly as robust. In a study of trauma survivors, increases in received social support appeared to help offset losses in perceived social support, which suggests these two types of support may work in tandem to help individuals reduce PTSD symptom severity (Norris, Friedman, Watson, Byrne, Diaz, & Kaniasty, 2002).

These findings regarding the effectiveness of social support suggest additional research is necessary to better understand how the perception and reception of social support affect an individual's level of stress-related symptomology. Of course, an important question is what mechanism or mechanisms influence the stressor-social support-symptom severity relationships. One possibility is that social support helps individuals manage the physiological stress response symptoms activated in PTSD. Increased levels of social support correlate with increased beneficial effect on an individual's cardiovascular, endocrine, and immune systems (Uchino, Cacioppo, & Kiecolt-Glaser, 1996). Thus, social support may act as a buffer of physiological stress symptoms, which are hallmark physical manifestations of PTSD hyperarousal symptoms (Cohen, 1988). Furthermore, higher levels of social support serve to improve engagement in

health-related behaviors, such as improved diet and increased exercise, leading to better overall individual health (Umberson, 1987). An individual's immune system is also affected by social support as higher levels of social support correlate significantly with predictors of immune system functioning in cancer patients (Baron, Cutrona, Hicklin, Russell, & Lubaroff, 1990).

By its definition, PTSD includes a number of symptoms that may impair interpersonal functioning including restricted affect range and irritability with others (Lauterbach & Vrana, 1994; Smith & Rauch, 2010). PTSD symptomology may exacerbate an individual's difficulty in obtaining or maintaining social support networks. Guay and colleagues found that combat veterans with PTSD reported social support levels decrease over time while combat veterans without PSTD reported no decrease in social support (Guay et al 2006). Similarly, in a cross sectional study of Vietnam Veterans, Keane and colleagues found that retrospective reports of quality and quantity of social support declined over time in Veterans with PTSD while Veterans without PTSD reported constant or improved levels of social support over time (Keane, Scott, Chavoya, Lamparski, & Fairbank, 1985). Furthermore, individuals with PTSD have a more negative attitude toward their social support networks, which was also associated with lower scores on measures of perceived social support (Clapp & Beck, 2009). Not only does PTSD have a direct effect on social support, it appears to have an indirect effect on social support via altering an individual's attitude toward his or her own social network.

Maintenance of a social network is not only important for provision of tangible support, it is also essential since people who have experienced a trauma often want to disclose information about the trauma to members of their network or social group (Pennebaker, 1993). However, despite this desire, a majority of individuals do not discuss their experiences with others, mainly for fear of upsetting members of their social support system. This lack of disclosure may also

result from social pressure not to disclose traumatic experiences or negative feelings regarding a traumatic event (Pennebaker, 1993).

Of course, factors other than PTSD symptoms may also influence social networks. For example, intimate relationships, significant relationships, and social support from friends tends to decrease with age (specifically individuals 65+) reflecting the shrinking social network as an individual gets older. Conversely, familial social support does not change over the life span (Prezza & Pacilli, 2002).

While the majority of the literature highlights the benefits of social support following trauma exposure, there is evidence suggesting that perceived and received social support may, paradoxically, lead to increased negative outcomes following trauma in certain individuals. Individuals who feel they are not getting the amount of support they desire exhibit feelings of indebtedness to those in their social support network (Jou & Fukada, 2002), increased negative affect and decreased positive affect (Gleason et al., 2008), and other psychological dysfunction (e.g. depression, frustration, and resentment; Thompson, Medvene, & Freedman, 1995). This paradoxical association has been demonstrated in a sample of Japanese college students (Jou & Fukada, 2002), couples in committed relationships (Gleason et. al, 2008), and individuals in caregiving relationships (Thompson et al., 1995). One possible explanation for this finding is that individuals desire to have reciprocity in support interactions and, if support is received by the victims but not reciprocated following trauma, individuals may feel psychological distress as a result of the discrepancy since they feel as though they were, on some level, "undeserving" of support (Gleason, Iida, Shrout, & Bolger, 2008). These findings are similar to the "matching hypothesis" of social support proposed by Cohen and Willis (1985), which states that effectiveness of social support is a function of how well the support received matches the

individual's perceived need for support (Cohen & Willis, 1985; Kim, Sherman, & Taylor, 2008). These findings are also similar to Equity theory, proposed by Uehara (1995). This theory states individuals experience psychological distress when they receive more support than they deem equitable, and individuals try to resolve this discrepancy. Therefore, support that does not match the desired level may have negative, rather than positive, results. Therefore, it is possible that despite strong support in the literature for the positive effects of social support on an individual's mental and physiological state following trauma, these benefits may not be universal and may depend on other variables. It is important to examine potential moderators of social support including personality traits in order to fully understand the potential benefits of social support.

Characteristics of Schizoid Personality Disorder

Schizoid Personality Disorder is classified as a Cluster A personality disorder in the DSM-IV-TR. This cluster of disorders is characterized by an overall presentation of "oddness" or eccentricity (APA, 2000). However, individuals with Schizoid Personality Disorder do not exhibit the characteristic psychotic symptoms seen in schizophrenia (Mittal, Kalus, Bernstein, & Siever, 2007). The hallmark of Schizoid Personality Disorder is a "pervasive pattern of detachment from social relationships and a restricted range of expression of emotions in interpersonal settings, beginning by early adulthood and present in a variety of contexts" (APA, 2000). Specific symptoms include lack of enjoyment of close relationships (including being part of a family), selection of solitary activities, little interest in having sexual experiences with another person, little pleasure in activities, few close friends or confidants, indifferences to praise or criticism, and emotional coldness, detachment, or flattened affectivity.

The current project did not examine individuals who met the criteria for Schizoid Personality Disorder. However, the hallmark characteristics of schizoid personality (social

withdrawal, detachment, avoidance of intimacy, anhedonia, restricted range of affect) were assessed (Triebwasser, Chemerinski, Roussos, Siever, 2012).

Individuals with elevated scores on measures of schizoid personality traits exhibit markedly low levels of pleasure derived from social activities (APA, 2000; Emmerson, Miller, & Blanchard, 2009), including poor social functioning and the inability to enjoy social interaction (Blanchard et al. 1998; Collins, Blanchard, & Biondo, 2004). In general, higher levels of social isolation and lack of enjoyment correlate with a variety of negative sequalae such as perceived stress, negative affect, and diminished amount of social support (Horan et al, 2007). Since schizoid personality traits are significantly correlated with social anhedonia, it follows that these traits are likely correlated with diminished social support, and this link may be mediated by the amount of pleasure derived from social interaction (e.g., social anhedonia). This aspect of the schizoid personality dimension likely impacts an individual's social network and may serve to limit the effectiveness of social support following a traumatic event.

Another hallmark behavior associated with schizoid personality traits is isolation. By definition, individuals with schizoid personality disorder avoid interpersonal contact, including contact with family and friends (APA, 2000). This desire for isolation further diminishes the availability of social support. Among those who meet the criteria for schizoid personality disorder, there is a significant negative correlation between severity of schizoid traits and social support seeking behavior as a coping strategy to deal with a recent life problem (r = -.29; Bijttebier & Vertommen, 1999). Similarly, among persons with schizoid personality disorder, there was a positive correlation between schizoid personality traits and avoidant coping behavior, which includes physical (isolation) and/or psychological (retreat into fantasy, distraction) withdrawal (r = .24; Bijttebier & Vertommen, 1999). The avoidant coping style of schizoid

individuals and the negative correlation this coping style has with social support, in conjunction with the hallmark isolation and anhedonic dimensions of schizoid personality, suggests social support following traumatic events may not be beneficial, or desired, for individuals with more schizoid personality features. In fact, increased social support may be incongruent with the individual's own coping style and may lead to increased stress and exacerbate symptoms of anxiety or PTSD.

Characteristics of Schizotypal Personality Disorder

Schizotypal personality disorder is also a Cluster A personality disorder and shares several characteristics with schizoid personality disorder including odd behavior and social isolation (APA, 2000). The hallmark of schizotypal personality disorder is a "pervasive pattern of social and interpersonal deficits marked by acute discomfort with, and reduced capacity for, close relationships as well as by cognitive or perceptual distortions and eccentricities of behavior, beginning by early adulthood and present in a variety of contexts." The prominent psychotic features and interpersonal features (e.g. social anhedonia and social avoidance) are similar to the symptoms seen in the prodromal phase of schizophrenia, such as unusual perceptual experiences, cognitive disorganization, and lack of close friendships (Raine, Mellingen, Liu, Venables, Mednick, 2003). Despite the similarities in symptomology, individuals with schizotypal personality disorder rarely go on to develop schizophrenia (Berry, Band, Corcoran, Barrowclough, & Wearden, 2007). In addition, individuals with schizotypal personality disorder tend to exhibit excessive social anxiety when in social situations, unlike individuals with schizoid personality disorder (APA, 2000). The major differences between schizoid and schizotypal personality dimensions are that the latter includes some psychotic symptomology similar to schizophrenia and the former includes more of a sense of detachment

from social relationships, rather than discomfort in social relationships.

The characteristic symptoms of schizotypal personality include markedly high levels of social isolation and anxiety, which is likely related to impaired social interaction. Individuals who meet the diagnostic criteria for schizotypal personality disorder may have similar coping styles as individuals with schizoid personality disorder. Individuals who manifest significant schizotypal symptoms do not engage in socially supportive behaviors and cope with stress in a more avoidant manner than individuals who do not exhibit these personality characteristics (Bijttebier & Vertommen, 1999). It follows, then, that schizotypal personality traits may also influence behaviors that in turn impact social relationships. These results suggest that individuals who score higher on measures of schizotypal personality traits may not respond positively to an influx of social support following a trauma.

Personality Traits and Social Support

A central characteristic of both schizoid and schizotypal personality disorder is a desire for social isolation and distance from others, including friends and family (Emmerson, Miller, Blanchard, 2009; Kosson, Blackburn, Byrnes, Park, Logan, Donnelly, 2008). The relationship between these personality disorders and social support may seem obvious on the surface; fewer social relationships lead to less available social support. This interplay between the desire for isolation and absence of social support may be more complex, however. As previously mentioned, individuals desire a reciprocity and equality in their social relationships (Cohen & Willis, 1985) and, when a difference exists in the amount of support desired and the amount received, individuals feel psychological distress (Gleason, Iida, Shrout, & Bolger, 2008) and may feel they must "repay" members of their social network for provision of support in excess of level of desired support (Buunk & Schaufeli, 1993; Jou & Fukada, 2002; Uehara, 1995). It

follows that individuals who score high on measures of isolation may, in fact, desire very little social support and when support is provided following a trauma, this influx of support may have damaging psychological effects on the individual. The link between social support and benefit following stressful events may not be as universal as once thought, and recent research indicates that the effectiveness of social support may be related to personality characteristics, such as internalizing behavior and a desire for isolation as well as external factors, such as cultural values and norms.

Personality Traits and Trauma Exposure

Personality traits may be predictive of both trauma exposure and subsequent PTSD. In an analysis of female sexual assault survivors, Miller and Resick (2007) found that individuals with more internalizing personality traits (high negative emotionality with low positive emotionality) experienced more childhood sexual abuse than those with more externalizing traits (low emotional constraint, aggression; Miller & Resick, 2007). Internalizing individuals endorsed more schizoid and avoidant personality traits than did externalizing individuals, suggesting the potential link between personality traits and certain types of trauma exposure. Furthermore, schizotypal personality traits are associated with higher levels of trauma exposure. Berenbaum et al. (2008) found schizotypal personality traits were significantly positively correlated with childhood maltreatment and history of trauma exposure (Berenbaum, Thompson, Milanak, Boden, & Bredmeier, 2008). In addition, higher levels of schizotypal symptoms were found in individuals who had experienced severe childhood neglect, sexual abuse, physical, and emotional abuse (Ruggiero, David, & Handelsman, 1999). Furthermore, individuals who met criteria for schizotypal and borderline PDs experienced more types of trauma than individuals with other personality disorders (Yen, Shea, Battle, Johnson, Zlotnick, Dolan-Sewell, Skodol, Grilo,

Gunderson, Sanislow, Zanarini, Bender, Rettew, & McGlashan, 2002). There is also a moderate positive correlation between childhood maltreatment and the development of schizotypal personality characteristics in adulthood (Berenbaum et al., 2008). These findings suggest there is a significant association between trauma exposure and schizotypal traits and, it follows, research should focus on further exploration of this association.

Goals and Objectives of the Study

The current research project was designed to examine the relationship between social support, PTSD symptomology, and levels of schizoid and schizotypal personality traits. There is a significant body of literature suggesting perceived social support has a positive effect for victims of trauma in preventing, or diminishing, symptoms of PTSD (Guay et al., 2006; King et al., 2006; Ozer et al., 2003). There is also recent literature indicating that social support may not always be beneficial following trauma (Gleason et al., 2008; Jou & Fukada, 2002; Thompson et al., 1995) and potential benefits of support may be based on different internal and external influences (Gleason et al., 2008; Kim et al., 2008). Many different factors, including individual personality traits, are important to consider when determining the effectiveness of social support.

While there is a considerable body of literature examining the relationship between social support and PTSD, there is little information regarding specific personality traits that may moderate the effectiveness of social support following traumatic events. Individuals who exhibit more isolating personality traits likely do not see the same salutatory effects of social support as the general population. Social support may be detrimental to the recovery of persons characterized by high levels of neuroticism, isolation, or social anhedonia, as is the case for persons with schizoid and schizotypal personality disorders.

Summary and Hypotheses

Previous research has found significant associations between amount and type of social support and severity/presence of PTSD (Stephens et al., 1997). Benefits derived from increased social support may not be universally applicable, however, and personality variables may moderate of the effects of social support. Listed below are the specific hypotheses regarding the relationships among personality traits (i.e., schizoid and schizotypal personality traits), social support, trauma exposure, and PTSD symptom severity:

Hypothesis 1(a): It was hypothesized that perceived social support will be predictive of PTSD symptom severity after controlling for demographic variables (age, sex, and race/ethnicity). This hypothesis will be supported if there is a negative correlation between scores on measures of perceived social support and PTSD symptom severity.

Hypothesis 1(b): It was hypothesized that received social support will be predictive of PTSD symptom severity after controlling for demographic variables (age, sex, race/ethnicity). This hypothesis will be supported if there is a negative association between scores on measures of received social support and PTSD symptom severity.

Hypothesis 2(a): It was hypothesized that schizoid personality traits will partially moderate the relationship between both received and perceived social support and PTSD symptom severity following trauma. This hypothesis will be supported if there is a significant moderation effect of schizoid personality traits on the direct effect of social support on PTSD symptom severity.

Hypothesis 2(b): It was hypothesized that schizotypal personality traits will partially moderate the relationship between both perceived and received social support and PTSD symptom severity following trauma. This hypothesis will be supported if there is a significant moderation effect of schizotypal personality traits on the direct effect of social support on PTSD

symptom severity.

Hypothesis 3: It was hypothesized that perceived social support will be a stronger predictor of PTSD symptom severity than received social support. This hypothesis will be supported if a significantly higher amount of the variance seen in PTSD symptom severity can be attributed to perceived social support than received social support.

Hypothesis 4: It was hypothesized that individuals who score higher on measures of schizoid and schizotypal personality traits will report more traumatic events than individuals who score lower on these measures. This hypothesis will be supported if a positive correlation is found between scores on measures of schizoid and schizotypal personality traits and the overall number of traumatic events endorsed.

Research Design and Methods

Participants

Participants were recruited from undergraduate psychology classes at a medium-sized Midwestern university. The only selection criterion was current age of at least 18. The initial sample was composed of 419 participants. However, 9 participants completed the measure twice, 1 participant completed the measure three times, and 1 participant completed the measure four times. Among multiple responders, one set of test results was retained for each person based on level of completeness. Following removal of duplicate responses, the remainder of the sample (N = 405) was analyzed for missingness, and cases were deleted in which participants completed only the demographics section (N = 5) and in which participants had significant missingness (>70%; N = 14). This resulted in a final sample size of 386. Participants whose responses were eliminated due to missingness did not differ significantly from the retained sample on any demographic variable assessed in the study (age, sex, grade, marital status, or

racial/ethnic background). For a multiple regression with 5 predictors (schizotypal traits or schizoid traits, 3 covariates, and an interaction term), Cohen calculated that a sample size of 645 would be needed to detect a small effect size, and a sample size of 91 would be needed to detect a moderate effect size at the .05 level (Cohen, 1998). The sample size in the current study was sufficient to detect a small to moderate effect size. The demographic characteristics of the research participants closely mirror those of the university undergraduate population, which will allow for generalization of results to the overall population of the university as well as other universities with similar geographic and demographic characteristics. Complete demographic information is presented in Table 1.

Participants were recruited from undergraduate psychology classes using in-person recruitment presentations. A short (3-5 minute) presentation was given to potential participants, which included the goals and objectives of the study and the responsibilities of participants. Individuals were also apprised of the potential risks associated with the study, including exposure to questions regarding traumatic events they have experienced. Potential subjects were also informed that they may withdraw from the study at any time without penalty. A full script of the recruiting statements can be found in Appendix A. Individuals who indicated interest in participating in the study provided their names and email addresses on a signup sheet and were directed via email to use the Sona System to sign up to participate in the study. Participants received course credit or extra credit for study participation at the discretion of their course instructor. Once participants expressed an interest in the study, an email was sent to them, which contained both a confirmation of their desire to participate and a hyperlink to the online study-related materials. The study information was also posted directly on the Eastern Michigan University Sona System, and participants who accessed the study website via the Sona System

directly were also included in the analyses.

Research Design

The study is a single-panel (cross-sectional) survey design. Participants completed questionnaires assessing levels of schizoid and schizotypal personality traits and measures assessing trauma history, PTSD symptom severity, and reported perception and receipt of social support. All study-related measures were completed online, and there was no need for follow-up contact with any study participants. Although there are no true independent or dependent variables in this investigation, the predictors in this study were schizoid and schizotypal personality traits, self-reported levels of perceived and received social support, and trauma history. The moderation effect of schizoid and schizotypal personality traits on the relationship between social support and PTSD symptom severity following trauma were examined. All participants were required to complete all measures in the study. There was no true control group associated with this study; however, age, race, and sex were controlled for during statistical analysis as each is predictive of PTSD symptom severity (see above).

Measures

Schizotypal Personality Questionnaire (SPQ). The SPQ (Raine, 1991) is a 74-item self-report measure designed to assess nine different dimensions of schizotypal personality disorder in the general population. Items are dichotomously scored (1 = *yes*, 0 = *no*). Scores range from 0 to 74, with higher scores representing greater levels of schizotypal personality traits. The original SPQ contains no reverse scored items, and the measures of reliability and validity reflect the original version of the SPQ. The SPQ contains nine subscales labeled: ideas of reference (9 items), excessive social anxiety (8 items), odd beliefs or magical thinking (7 items), unusual perceptual experiences (9 items), odd or eccentric behavior (7 items), no close friends (9 items),

odd speech (9 items), constricted affect (8 items), and suspiciousness (8 items). There is strong internal consistency for the entire measure and adequate internal consistency for each of the subscales (total $\alpha = .90$, ideas of Reference $\alpha = .71$, excessive social anxiety $\alpha = .72$, odd beliefs or magical thinking $\alpha = .81$, unusual perceptual experiences $\alpha = .71$, odd or eccentric behavior $\alpha = .76$, no close friends $\alpha = .67$, odd speech $\alpha = .70$, constricted affect $\alpha = .66$, suspiciousness $\alpha = .78$) (Raine, 1991). The only scale that was not significantly reliable was the "Odd Beliefs and Magical thinking" subscale.

Individual scores on the SPQ were stable across a two-month test-retest interval $r = .82$. Correlations between SPQ scores and the related constructs of the Schizotypy Traits Questionnaire (STA) and Schizophrenism (14 item subscale of the STA) were also robust (STA = .81, Schizophrenism = .65). The SPQ demonstrated good discriminant validity as scores on the measure were not strongly correlated with measures of the unrelated constructs anhedonia and psychoticism (anhedonia = .18, psychoticism = .27). The version of the SPQ used in this study contains 25 reversed-scored items (33.8% of all items). Items were reworded in order to minimize response bias from study participants. The reverse-scored items are negations of their corresponding original items. Internal consistency of the SPQ in this study was slightly lower than the original SPQ ($\alpha = .85$). It should be noted, however, that the final 15 items on the SPQ were inadvertently excluded from the SPQ due to electronic error. While the items in the omitted portion represented each of the subscales relatively equally, failure to include these items may have impacted the internal consistency of the measure. Despite these items being excluded, the measure containing reverse scored items demonstrated adequate internal consistency. Both the original measure and the measure containing reverse scored items can be found in Appendix B.

Inventory of Socially Supportive Behaviors (ISSB). The ISSB (Barrera et al., 1981) is a 40-item self-report questionnaire designed to assess received social support. Items on the ISSB are scored on a 5-point Likert scale (0 = *not at all,* 1 = *once or twice,* 2 = *about once a week,* 3 = *several times a week,* 4 = *about every day*). Scores on the ISSB range from 0 to 160, with lower scores representing less received social support. The ISSB contains no reverse-scored items, and total score on the ISSB is determined by summing the item scores. Factor analyses of ISSB have consistently demonstrated the following four ten-item factors: emotional support (ES), tangible assistance (TA), cognitive information (CI), and directive guidance (DG; Brock, 1996; Stokes & Wilson, 1984). The ES subscale is designed to measure the comfort an individual receives from others. The TA subscale is designed to measure materials or goods received from others that provide support. The CI subscale is designed to measure cognitive help derived from others in problem solving. The DG subscale is designed to measure tangible advice or information derived from others. The ISSB, as a whole, possesses moderate internal reliability (r = .73) and each subscale demonstrates adequate internal consistency (ES = .85, TA = .71, CI = .73; DG = .77; Brock, 1996; Stokes & Wilson, 1984). Two day test-retest reliability for the ISSB is .88 (Barrera et al., 1981). The ISSB is positively correlated with the Family Environment Scale – Cohesion Subscale (r = .36) and the Arizona Social Support Interview Schedule (ASSIS) subscales for available support (r = .42) and actual social support network size (r = .32), illustrating adequate convergent validity (Barrera et al., 1981). The measure was used in its entirety and split into subscale scores. Internal consistency for the ISSB in the study sample was strong (α = .97). A copy of the ISSB can be found in Appendix C.

The Multidimensional Scale of Perceived Social Support (MSPSS). The MSPSS (Zimet et al., 1988) is a 12-item self-report measure of perceived social support examining the perception

that social support would be available if needed from different sources. Items assess the perceived availability of different types of social support and are scored on a 7-point Likert-type scale (1 = *very strongly disagree*, 7 = *very strongly agree*) with higher values corresponding with greater perceived support. There are no reverse-scored items. The MPSS consists of three 4-item subscales assessing the perceived availability of social support from friends, family, and significant others. Internal consistency estimates for the three subscales of the MSPSS obtained from psychiatric and university samples are as follows: friends .94 (psychiatric) and .93 (university), family .92 (psychiatric) and .92 (university), significant others .94 (psychiatric) and .93 (university; Clara, Cox, Enns, Murray & Togrudc, 2003). The MSPSS has demonstrated adequate validity, and overall scores have been positively associated with measures of social support behaviors and negatively associated with measures of depression and anxiety. Factor-analytic examination of the MPSS has suggested a three-factor model of perceived social support (friends, family, and significant other) in both a university student sample and a sample of depressed patients (Clara et al., 2003). Internal consistency for the MSPSS in the current study was strong ($\alpha = .94$). A replication of the MPSS can be found in Appendix D.

Purdue PTSD Scale – Revised (PPTSD-R). The PPTSD-R (Lauterbach & Vrana, 1996) is a 17-item self-report measure that is designed to assess individual symptoms of posttraumatic stress disorder (PTSD) as determined by the DSM-III-R. The original version, the PPTSD, was developed by Don Hartsough and a group of graduate students in clinical/community psychology at Purdue University (Hartsough, 1988). Items on the PPTSD-R are scored on a 5-point Likert-type scale (1 = *not at all* to 5 = *often*). The PPTSD-R contains no reverse-scored items, and scores on this measure range from 17 – 85 with higher scores indicative of greater self-reported frequency of PTSD symptoms. The PPTSD-R contains three subscales, each measuring a

specific construct of PTSD: re-experiencing, avoidance, and hyperarousal. The internal consistency for the total measure as well as the three subscales is high (total = .91, re-experiencing = .84, avoidance = .79, hyperarousal = .81). Temporal stability of the PPTSD-R is relatively high at a two-week test-retest interval (total = .72, re-experiencing = .48, avoidance = .67, hyperarousal = .71). Regarding convergent and divergent validity, the PPTSD-R correlates most strongly with other measures of PTSD symptomology, the Impact of Events Scale (IES) and the Civilian Mississippi Scale for PTSD at .66 and .50, respectively, and less strongly with the Beck Depression Inventory (BDI; r = .38; Lauterbach & Vrana, 1996). The PPTSD-R is also able to distinguish between persons exposed to different numbers and types of trauma. Internal consistency for the PPTSD-R in the sample was strong (α = .94). A copy of the PPTSD-R can be found in Appendix E.

Posttraumatic Stress Disorder Checklist– Civilian Version - Revised (PCL-C-R). The PCL-C-R is a 21-item self-report measure designed to examine the PTSD diagnostic symptoms from both the DSM-IV-TR and the proposed criteria from the DSM-5. This measure is a revision of the PCL-C (Weathers, Litz, Herman, Huska, Keane, 1993), which is a 17-item self-report measure designed to examine PTSD symptomology based on the DSM-IV-TR diagnostic criteria. Each item on the PCL-C corresponds to one symptom in the DSM-IV-TR diagnostic criteria for PTSD. Five items were added to and one item was removed from the PCL-R to reflect the proposed changes in the diagnostic classification of PTSD in DSM-5. All items are rated on a 5-point Likert-type scale (1 = *not at all* to 5 = *extremely*). The PCL-C-R contains no reverse-scored items, and scores on the measure range from 21 – 105, with higher scores reflecting higher distress related to PTSD symptomology. Data suggest the PCL-C demonstrates excellent test-retest reliability (.96) over a 2-3 day period (Weathers et al., 1993). The PCL-C

also demonstrates high internal consistency for the entire measure and for each of the PTSD diagnostic criteria categories from the DSM-IV-TR (PCL = .94, re-experiencing = .85, avoidance = .85, and hyperarousal = .87; Ruggiero, Ben, Scotti, Rabalais, 2003). Furthermore, the PCL-C demonstrates good convergent validity with an alternate measure of PTSD, the Clinician Administered PTSD Scale (CAPS) with high symptom correlations (r = .93) between the two measures (Blanchard, Jones-Alexander, Buckley, Forneris, 1996). Although the PCL-C-R has not been validated to date, it is expected this revision will have similar psychometric properties to the original PCL-C as the majority of the items are identical to the original PCL-C. Internal consistency for the PCL-R in the current study, including the additional items representing proposed DSM-5 criteria for PTSD, was strong (α = .96). A copy of the PCL-C-R can be found in Appendix F.

Personality Disorders Questionnaire – Version 4 (PDQ-4+). The PDQ-4+ (Hyler, 1994) is a 99-question self-report measure designed to assess the ten personality disorders listed in the DSM-IV-TR. Items on the PDQ-4+ are dichotomously scored (0 = *true*, 1 = *false*), and the PDQ-4+ contains no reverse-scored items. The measure is divided into ten subscales, each assessing one of the DSM-IV-TR classified personality disorders (avoidant, schizoid, schizotypal, borderline, narcissistic, histrionic, obsessive-compulsive, antisocial, and dependent). Items pertaining to each of the subscales are listed in random order throughout the PDQ-4+ (Fossati et al, 1998). The average internal consistency for the subscales of the items was moderately high (α = .79; Mihura et al., 2003). Individual scores on the subscales of the PDQ-4+ were relatively stable across a ten-day interval (test-retest reliability: M = .67, range = .48 to .79; Yang et al., 2000). The subscales on the PDQ-4+ are not strongly intercorrelated, suggesting different subscales do assess different personality disorders. The PDQ-4+ also shows strong

discriminant validity as measured by Receiver Operating Characteristic (ROC) values. Receiver Operating Characteristic (ROC) analysis provides a value ranging from .5 (no diagnostic utility) to 1.0 (perfect diagnostic utility). ROC analysis shows the PDQ-4+ has fair to good discriminant validity (.762 +/- .086; Fossati et al., 1998). Internal consistency of both the schizoid and schizotypal subscales of the PDQ-4+ in the study sample was modest (Schizoid α = .54; Schizotypal α = .65) and somewhat lower than some published results (Mihura et al., 2003) but consistent with others (Calvo, Gutierrez, Andion, Caseras, Torruiba, & Casas, 2012; Fossati et al., 1998). A copy of the PDQ-4+ schizoid and schizotypal subscales are reproduced in Appendix G.

Traumatic Events Questionnaire – Revised (TEQ). The TEQ (Vrana & Lauterbach, 1994) is an 11-item self-report measure that is designed to examine an individual's experience with 11 types of traumatic events, including accidents, natural disasters, crime, child abuse, rape, adult abusive experiences, witnessing the death or mutilation of someone, being in a dangerous/life-threatening situation, receiving news of the unexpected or sudden death of a loved one, other traumatic events, and traumatic events the participant feels he or she cannot talk about. The purpose of the TEQ is to assess frequency, type, and severity of trauma experience. Participants are asked to indicate if they experienced each of these traumatic events. In addition, for all items experienced, they are asked to complete items assessing for severity of injury related to the trauma, if they felt like their life was in danger, how traumatic the event was for them at the time, and how traumatic the event is for them currently (Lauterbach & Vrana, 2001). Participants indicate their responses to these items on a 7-point Likert-type scale ranging from 1 = *not at all* to 7 = *seriously,* with higher scores indicating a more severe trauma experience. Participants who report more than one traumatic event are asked to indicate which of the events

they feel is the most traumatic to them. There are no reverse-scored items. The TEQ demonstrates good test-retest reliability at a two-week interval in assessing the number of traumatic events experienced (r = .91) and the occurrence of specific events (mean r = .80; Vrana & Lauterbach, 1994). The TEQ demonstrates fair agreement with the Composite International Diagnostic Interview (CIDI) in assessing for traumatic experiences ranging from k = 0.44 (physical assault) to k = 0.69 (sexual abuse/assault; Crawford, Lang, & Laffaye, 2008). Regarding validity, participants who indicated more than one traumatic event also reported higher levels of depression, PTSD symptoms, and anxiety than participants who did not indicate multiple events (Antony, Orsillo & Roemer, 2001). A revised version of the traumatic events questionnaire (TEQ-R) was used in this study. The TEQ-R assesses for the presence/severity of the same types of traumatic experiences. However, the new version of the TEQ was developed as a computer-based instrument that aims to capture additional details of the event (e.g., relationship of the assailant, specific details of an accident, nature of the assault, etc.) that were not captured by the original TEQ. The psychometric properties are expected to be similar to the original version of the TEQ, but a full psychometric analysis has yet to be conducted. Because this version of the TEQ is computerized, it cannot be included in this manuscript. A hyperlink to the TEQ-R will be provided upon request.

Procedures

This study was conducted completely online with an electronic informed consent document and internet-based study measures. Participants were able to complete the study at any computer with an Internet connection. When participants first logged in to the study via the Sona System, they were presented with a description of the project indicating the research goals and the extent of their participation. A copy of the study description that was given to all

participants is reproduced in Appendix I. Those who remain interested were asked to provide their electronic consent verifying their intent to participate and acknowledging any and all risks associated with study participation. The consent form was visually presented on the initial computer screen, and participants indicated via their electronic signature that they accepted all conditions of the study. Participants were given the option to print a copy of the consent form for their own record. A copy of the informed consent document can be found in Appendix J. Only the primary investigator has access to the consent information.

Participants were asked to provide a unique identification code on the initial screen of the computerized assessment following the consent form in order to keep participant identifying information separate from their responses to study questionnaires. This code also allowed for the identification of multiple responders. Participant identification codes consisted of the last two letters of the participant's middle name and the last four digits of the participant's telephone number. For example, a participant named John Patrick Smith with a phone number of 555-555-5555 would enter "ck5555". The identification codes were only entered on the initial assessment screen, and the codes never came in contact with the participants' names at any point during the study or the data analysis.

Instructions for completing the seven self-report measures used in the study were provided prior to beginning each instrument. The study included the following measures: Demographics Section, Schizotypal Personality Questionnaire (SPQ), the Purdue-Posttraumatic Stress Disorder Scale – Revised (PPTSD-R), the Posttraumatic Stress Disorder Checklist–Civilian Version – Revised (PCL-C-R), Personality Disorders Questionnaire 4th Edition (PDQ-4+), the Traumatic Event Questionnaire – Revised (TEQ-R), the Inventory of Socially Supportive Behaviors (ISSB), the Multidimensional Scale of Perceive Social Support (MSPSS).

The demographics questionnaire is reproduced in Appendix K. The measures were presented to participants in one of two semi-random orders in order to control for potential order effects. The first arrangement of measures was as follows: Demographics, ISSB, MSPSS, TEQ-R, PPTSD-R, PCL-C-R, SPQ, PDQ-4+. The second arrangement of measures was as follows: Demographics, PDQ-4+, SPQ, TEQ-R, PCL-C-R, PPTSD-R, MSPSS, ISSB. There were several constraints in developing the order of the measures for the proposed study. It was important to include the demographics questionnaire first to 1) better understand any characteristics of participants who prematurely discontinue participation and 2) facilitate missing data analysis following study completion. Also, the TEQ-R must be presented prior to the PPTSD-R and the PCL-C-R and, therefore, could not be altered in the second arrangement of measures. Participants were randomly assigned to one of these order conditions. The time to complete all study-related measures is approximately 70 minutes. All participant data were collected electronically during administration of the measures and stored on a secure server. The informed consent documents were also stored on the same secure server. The only "identifying information" stored with the data was the individual participant's code. The primary investigator was the only member of the research team who had access to both the consent information and the study-related questionnaire data. Following participation in study-related activities, all participants were provided with referral information indicating available therapy resources, should they want to seek any counseling. Participants were also informed to direct any questions or concerns to the primary investigator or co-investigator at the completion of the study. Email addresses and phone numbers for both the primary investigator and co-investigator were provided on the consent document and again at the end of the study materials on a short debriefing form. A transcript of the debriefing document can be found in Appendix J.

Data Analyses

All data were analyzed using the statistical software package SPSS (Statistical Package for the Social Sciences; IBM). Prior to conducting descriptive and inferential analyses, all data were evaluated for degree of missingness. Approximately 1% of the data were determined to be missing. For missing values on the ISSB, MSPSS, and SPQ values were imputed using mean substitution. In SPSS, the mean substitution procedure calculates the mean for an item across all subjects and imputes this value. Thus, the calculated mean prior to and following imputation using this strategy is unchanged. An alternative strategy is to compute a mean within (not between) subjects and impute this value. The latter strategy was used in the current study as it was thought to be a better reflection of the subjects' true standing on that item. Mean scores were computed based on all items for three measures (ISSB, MSPSS, and SPQ). For measures that contained subscales (i.e., PPTSD-R, PCL-R, PDQ4+) missing values were imputed using participant's mean scores on the subscale containing the missing value. After data imputation, descriptive statistics were computed for all independent and dependent variables to describe the characteristics of the sample and to test for assumptions of tests.

Listed below are the specific hypotheses and the data analytic strategy:

Hypothesis 1(a): It was hypothesized that perceived social support will be predictive of PTSD symptom severity, after controlling for demographic variables (age, sex, and race/ethnicity). To test this hypothesis, a hierarchical linear regression was conducted. For this and all subsequent regression analyses, it was assumed the data would be without outliers on both the independent and dependent variables. Multivariate outliers were assessed using statistical calculations of Mahalanobis distance in SPSS in order to determine the distance of the data points from the centroid (mean created by finding the mean of all variables). In addition, it

was assumed there would be minimal multicolinearity. Tolerance values were calculated in all multiple regression procedures to assess for potential problems with multicolinearity. Normality, linearity, and homoscedasticity were assumed in the data as well and were assessed by examination of residual scatter plots of the data from multiple regression analyses using SPSS. Due to significant positive skew, PTSD symptom severity data were transformed using $\log_{10}$ transformation as suggested by Tabachnick and Fidell (2000). Given that this transformation results in reflected scores, a positive beta weight in this and subsequent analyses refers to a *negative* predictive relationship with the outcome variable (PTSD symptomology). It was assumed all residuals would be normally distributed. Finally, it was assumed the data will exhibit independence of errors of prediction and this assumption was assessed by calculating the Durbin-Watson statistic examining the autocorrelation of errors (Tabachnick & Fidell, 2000).

In the first block of the regression, the following co-variates were entered: sex, age, and race/ethnicity (defined dichotomously). In the second block, scores on the MSPSS (perceived social support) were entered. The dependent variable was PTSD symptom severity. The hypothesis would be supported if perceived social support was predictive of lower and PTSD symptom severity.

Hypothesis 1(b): It was hypothesized that received social support will be predictive of PTSD symptom severity after controlling for demographic variables (sex, age, race/ethnicity). To test this hypothesis, a hierarchical linear regression was conducted. In the first block, the following co-variates were entered: sex, age, and racial ethnicity. In the second block, scores on the ISSB (received social support) were entered. The dependent variable was the $\log_{10}$ of PTSD symptom severity. The hypothesis would be supported if received social support is predictive of reduced PTSD symptom severity. The assumptions of tests and data analytic procedure listed for

hypothesis 1(a) hold for this hypothesis as well.

Hypothesis 2(a): It was hypothesized that schizoid personality traits will partially moderate the relationship between overall social support and PTSD symptom severity and was evaluated using a multiple regression analysis. Moderation was tested using the procedure for analyzing moderation discussed by Barron and Kenny (1986). Participant's scores on the PDQ-4+ schizoid items served as the moderator variable. Scores from the ISSB (received social support) and the MSPSS (perceived social support) served as the independent variables and transformed scores on the PPTSD-R, PCL-R, and PCL-DSM5 (PTSD symptom severity) were the outcome variables. The independent variables were centered by subtracting the mean score from the actual score for the variable. This was done to reduce multicolinearity (i.e., correlations between the predictor variables). Once the variables were centered, an interaction term was created by multiplying the centered score on the independent variable (social support) and the score on the moderator variable (schizoid traits). Covariates (age, race, and sex) were entered first in the model as a single block as a fixed factor. The moderator variables and the independent variables were entered in a second block as a fixed effect. The hypothesis would be supported if significant moderation of the relationship between social support and PTSD symptom severity is demonstrated by schizoid personality traits. The assumptions of tests and data analytic procedures for multiple regression listed in hypothesis 1(a) hold for this hypothesis as well.

Hypothesis 2(b): It was hypothesized that schizotypal personality traits will partially moderate the relationship between overall social support and PTSD symptom severity and was evaluated using a multiple regression analysis. Again, the Barron and Kenny (1986) procedure for testing for moderation was used. Participant's scores on the PDQ-4+ (schizotypal personality traits) were the moderator variables. Scores from the ISSB (received social support) and the

MSPSS (perceived social support) served as the independent variables and transformed scores on the PPTSD-R, PCL-R, and PCL-DSM-5 (PTSD symptom severity) were the outcome variables. The independent variables were centered to reduce the multicolinearity. Once the variables were centered, an interaction term was created by multiplying the centered score on the independent variable (social support) and the score on the moderator variable (schizotypal traits). Covariates (age, race, and sex) were entered first in the model as a single block as a fixed factor. The moderator variables and the independent variables were entered in a second block as a fixed effect. The hypothesis would be supported if significant moderation of the relationship between social support and PTSD symptom severity is demonstrated by schizotypal personality traits. The assumptions of tests and data analytic procedures for multiple regression listed in hypothesis 1(a) hold for this hypothesis as well.

Hypothesis 3: It was hypothesized that perceived social support is a stronger predictor of PTSD symptom severity than received social support. This hypothesis was evaluated by conducting a multiple regression analyzing the relative predictive power of each type of social support. Transformed scores on the PPTSD-R and the PCL-C-R (PTSD symptom severity) were used as the dependent variable and scores on the ISSB (received social support) and the MSPSS (perceived social support) were the independent variables. The hypothesis would be supported if scores on the MSPSS predict a significantly higher amount of variance in PTSD symptom severity than scores on the ISSB.

Hypothesis 4: It was hypothesized that schizoid and schizotypal personality traits would be positively correlated with trauma exposure. Scores on the PDQ-4+ schizoid and schizotypal subscales were correlated with total number of traumatic events and total number of unique events endorsed on the TEQ-R. This hypothesis will be supported if a negative correlation is

found between levels of schizoid and schizotypal personality traits and number of traumatic events endorsed.

Results

Description of the Sample

Descriptive statistics were calculated for the final sample of 386 participants and are presented in Table 1. The final sample had an average age of 22.3 years (*SD* = 6.31) and was primarily female (73.6%), Caucasian (57.5%), and single (58.8%). The vast majority of the sample (84.2%) experienced at least one traumatic event with a significant percentage (40.4%) endorsing more than 3 potential criterion A events. Given the high trauma prevalence in the sample, it follows that a significant portion of the sample would meet diagnostic criteria for PTSD. Consistent with recommendations from the National Center for PTSD, a cutoff score on the PCL-R and PPTSD-R of 35 serves as a liberal estimate of PTSD prevalence in civilian samples. Based on this total score cutoff, a significant portion of the study sample (21.6%) would meet criteria for PTSD using the PCL and 39.1% of the sample would meet criteria for a PTSD diagnosis using the PPTSD-R. The National Center for PTSD also uses a more conservative cutoff score on the PCL and the PPTSD-R of 45. Using this cutoff score, a smaller proportion of the sample would meet criteria for PTSD (PCL-R: 7.4%; PPTSD-R: 20.8%). However, even using this more conservative estimate, a substantial percentage of the sample is still PTSD+.

All participants included in data analysis completed measures of both schizoid (PDQ-4+) and schizotypal (SPQ, PDQ-4+) traits. A substantial percentage of participants met criteria for clinically significant schizoid (3.9%) and schizotypal (7.0%) personality traits and the vast majority of the sample endorsed some schizoid and/or schizotypal personality traits (Schizoid:

71.7%; Schizotypal: 80.3%). Please refer to Table 3 for more complete demographic information.

Table 3
Participant Demographics

Demographic Category	N	% of sample
Sex		
Male	101	26.2
Female	284	73.6
Transgender	1	0.3
Race/Ethnicity		
African American	97	25.1
Caucasian (White)	222	57.5
Hispanic (Latino)	15	3.9
Asian American	8	2.1
More than 1	16	4.1
Other	28	7.2
Grade		
Freshman	79	20.5
Sophomore	101	26.2
Junior	100	25.9
Senior	99	25.6
Other	7	1.9
Relationship Status		
Married	24	6.2
Single	227	58.8
Divorced	10	2.6
In a relationship	108	28.0
Living with romantic Partner	17	4.4
Personality Disorders		
Schizoid	15	3.9
Schizotypal	27	7.0
Posttraumatic Stress Disorder		
Cut Score = 35		
PCL-R	82	21.6
PPTSD-R	148	39.1
Cut Score = 45		
PCL-R	28	7.4
PPTSD-R	79	20.8
Age	**Mean (years)**	**SD**
	22.3	6.31

Social Support and PTSD Symptom Severity

Hypothesis 1a: After controlling for age, sex, and race/ethnicity (dummy coded and defined dichotomously), perceived social support was predictive of PTSD symptom severity as assessed by both the DSM-IV-TR (PCL-R: $\beta = .261$; $p < .001$; PPTSD-R: $\beta = .216$; $p < .001$)

and DSM-5 (β = .269; $p < .001$) diagnostic criteria. Higher levels of perceived social support were predictive of less severe symptoms of PTSD.

Hypothesis 1b: Received social support was not a significant predictor of PTSD symptom severity as assessed by any measure used in the current study. When taken together, tests of hypotheses 1a and 1b indicate that perception of the availability of support, rather than actual received support, likely explains the salutatory effects of social support on PTSD symptom severity. Results examining the relationship between social support and PTSD symptom severity are presented in Table 4a-4f.

Table 4a
Relationship between Perceived Social Support and Posttraumatic Stress Disorder (PPTSD-R)

Variable	β	R^2	F	$R^2\Delta$	FΔ
Block 1					
Age	-.050				
Sex	-.084				
Race/Ethnicity	.064	.013	1.668	.013	1.668
Block 2					
Age	-.027				
Sex	-.091				
Race/Ethnicity	.081				
Perceived SS	.216***	.059	5.850***	.046	18.164***

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Table 4b
Relationship between Perceived Social Support and Posttraumatic Stress Disorder (PCL-R)

Variable	β	R^2	F	$R^2\Delta$	FΔ
Block 1					
Age	-.032				
Sex	-.078				
Race/Ethnicity	.031	.008	.999	.008	.999
Block 2					
Age	-.004				
Sex	-.088				
Race/Ethnicity	.052				
Perceived SS	.261***	.075	7.544***	.067	26.971***

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Table 4c

Relationship between Perceived Social Support and Posttraumatic Stress Disorder (DSM-5)

Variable	β	R^2	F	$R^2\Delta$	FΔ
Block 1					
Age	-.028				
Sex	-.078				
Race/Ethnicity	.032	.008	.986	.008	.986
Block 2					
Age	.001				
Sex	-.089				
Race/Ethnicity	.054				
Perceived SS	.269***	.079	8.003***	.071	28.834

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Table 4d

Relationship between Received Social Support and Posttraumatic Stress Disorder (PPTSD-R)

Variable	β	R^2	F	$R^2\Delta$	FΔ
Block 1					
Age	-.050				
Sex	-.084				
Race/Ethnicity	.064	.013	1.668	.013	1.668
Block 2					
Age	-.055				
Sex	-.082				
Race/Ethnicity	.065				
Received SS	-.024	.014	1.301	.001	.207

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Table 4e

Relationship between Received Social Support and Posttraumatic Stress Disorder (PCL-R)

Variable	β	R^2	F	$R^2\Delta$	FΔ
Block 1					
Age	-.032				
Sex	-.078				
Race/Ethnicity	.031	.008	.999	.008	.999
Block 2					
Age	-.028				
Sex	-.080				
Race/Ethnicity	.030				
Received SS	.023	.008	.795	.000	.187

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Table 4f

Relationship between Received Social Support and Posttraumatic Stress Disorder (DSM-5)

Variable	β	R^2	F	$R^2\Delta$	FΔ
Block 1					
Age	-.028				
Sex	-.078				
Race/Ethnicity	.032	.008	.986	.008	.986
Block 2					
Age	-.023				
Sex	-.081				
Race/Ethnicity	.032				
Received SS	.026	.008	.801	.001	.251

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Moderating Effects of Personality Traits

Hypothesis 2a: It was hypothesized that schizoid personality traits partially moderate the relationship between social support and PTSD symptom severity after controlling for age, sex, and race/ethnicity. Separate analyses were conducted using the PPTSD-R, the PCL, and the DSM-5 measures of PTSD symptom severity as the dependent variables. Findings from these analyses can be found in Tables 5a-5f.

Perceived social support was a significant predictor of PTSD as assessed by both DSM-IV-TR (PCL-R: $\beta = .231$; $p < .001$; PPTSD-R: $\beta = .187$; $p < .001$) and DSM-5 ($\beta = .239$; $p < .001$) symptom criteria, which suggests perception of the availability of social support is associated with decreased PTSD symptom severity. Female sex was also predictive of higher PTSD symptom severity for all analyses of perceived social support (See Tables 5a-5c). Received social support was not a significant predictor of PTSD symptomology for any measure of PTSD used in this study (See Tables 5d- 5f).

Level of schizoid personality traits was a significant predictor of PTSD symptomology in regressions with both perceived and received social support. For analyses involving perceived social support (Tables 5a-5c), schizoid traits were significant predictors of PTSD symptom severity as measured by the PCL-R ($\beta = -.147$; $p < .01$), the PPTSD-R ($\beta = -.140$; $p < .01$) and DSM-5 symptom criteria ($\beta = -.148$; $p < .01$). For regression analyses including received social support (Tables 5d-5f), schizoid traits were significant predictors of PTSD symptom severity as measured by the PCL-R ($\beta = -.213$; $p < .001$), the PPTSD-R ($\beta = -.200$; $p < .001$) and DSM-5 symptom criteria ($\beta = -.216$; $p < .001$). These results suggest presence of schizoid personality traits is associated with increased PTSD symptom severity.

Table 5a

Relationship between Schizoid Personality Traits, Perceived Social Support, and PTSD (PPTSD-R)

Variable	**β**	**R^2**	**F**	**$R^2\Delta$**	**FΔ**
Block 1					
Age	-.050				
Sex	-.084				
Race/Ethnicity	.064	.013	1.668	.013	1.668
Block 2					
Age	-.027				
Sex	-.091				
Race/Ethnicity	.081				
Perceived SS	.216***	.059	5.850***	.046	18.164***
Block 3					
Age	-.040				
Sex	-.090				
Race/Ethnicity	.102*				
Perceived SS	.184***				
Schizoid Traits	-.172	.087	7.076***	.028	11.334**
Block 4					
Age	-.041				
Sex	-.101*				
Race/Ethnicity	.096				
Perceived SS	.187***				
Schizoid Traits	-.140**				
Perceived x Schizoid	.128*	.102	7.043***	.015	6.367*

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Table 5b

Relationship between Schizoid Personality Traits, Perceived Social Support, and PTSD (PCL-R)

Variable	β	R^2	F	$R^2\Delta$	FΔ
Block 1					
Age	-.032				
Sex	-.078				
Race/Ethnicity	.031	.008	.999	.008	.999
Block 2					
Age	-.004				
Sex	-.088				
Race/Ethnicity	.052				
Perceived SS	.261***	.075	7.544***	.067	26.971***
Block 3					
Age	-.018				
Sex	-.088				
Race/Ethnicity	.074				
Perceived SS	.228***				
Schizoid Traits	-.175**	.103	8.610***	.029	11.988**
Block 4					
Age	-.019				
Sex	-.097*				
Race/Ethnicity	.068				
Perceived SS	.231***				
Schizoid Traits	-.147**				
Perceived x Schizoid	.114*	.116	8.099***	.012	5.070*

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Table 5c

Relationship between Schizoid Personality Traits, Perceived Social Support, and PTSD (DSM-5)

Variable	β	R^2	F	$R^2\Delta$	FΔ
Block 1					
Age	-.028				
Sex	-.078				
Race/Ethnicity	.032	.008	.986	.008	.986
Block 2					
Age	.001				
Sex	-.089				
Race/Ethnicity	.054				
Perceived SS	.269***	.079	8.003***	.071	28.834***
Block 3					
Age	-.013				
Sex	-.088				
Race/Ethnicity	.076				
Perceived SS	.235***				
Schizoid Traits	-.178***	.109	9.090***	.030	12.456***
Block 4					
Age	-.014				
Sex	-.098*				
Race/Ethnicity	.070				
Perceived SS	.239***				
Schizoid Traits	-.148**				
Perceived x Schizoid	.119*	.122	8.610***	.013	5.645*

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Table 5d

Relationship between Schizoid Personality Traits, Received Social Support, and PTSD (PPTSD-R)

Variable	β	R^2	F	$R^2\Delta$	FΔ
Block 1					
Age	-.050				
Sex	-.084				
Race/Ethnicity	.064	.013	1.668	.013	1.668
Block 2					
Age	-.055				
Sex	-.082				
Race/Ethnicity	.065				
Received SS	-.024	.014	1.301	.001	.207
Block 3					
Age	-.073				
Sex	-.079				
Race/Ethnicity	.096				
Received SS	-.060				
Schizoid Traits	-.217***	.058	4.611***	.045	17.623***
Block 4					
Age	-.079				
Sex	-.076				
Race/Ethnicity	.096				
Received SS	-.056				
Schizoid Traits	-.200***				
Received x Schizoid	.101*	.068	4.522***	.010	3.893*

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Table 5e

Relationship between Schizoid Personality Traits, Received Social Support, and PTSD (PCL-R)

Variable	β	R^2	F	$R^2\Delta$	FΔ
Block 1					
Age	-.032				
Sex	-.078				
Race/Ethnicity	.031	.008	.999	.008	.999
Block 2					
Age	-.028				
Sex	-.080				
Race/Ethnicity	.030				
Received SS	.023	.008	.795	.000	.187
Block 3					
Age	-.047				
Sex	-.078				
Race/Ethnicity	.062				
Received SS	-.014				
Schizoid Traits	-.221***	.055	4.313**	.046	18.239***
Block 4					
Age	-.050				
Sex	-.076				
Race/Ethnicity	.062				
Received SS	-.012				
Schizoid Traits	-.213***				
Received x Schizoid	.044	.057	3.716**	.002	.746

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Table 5f

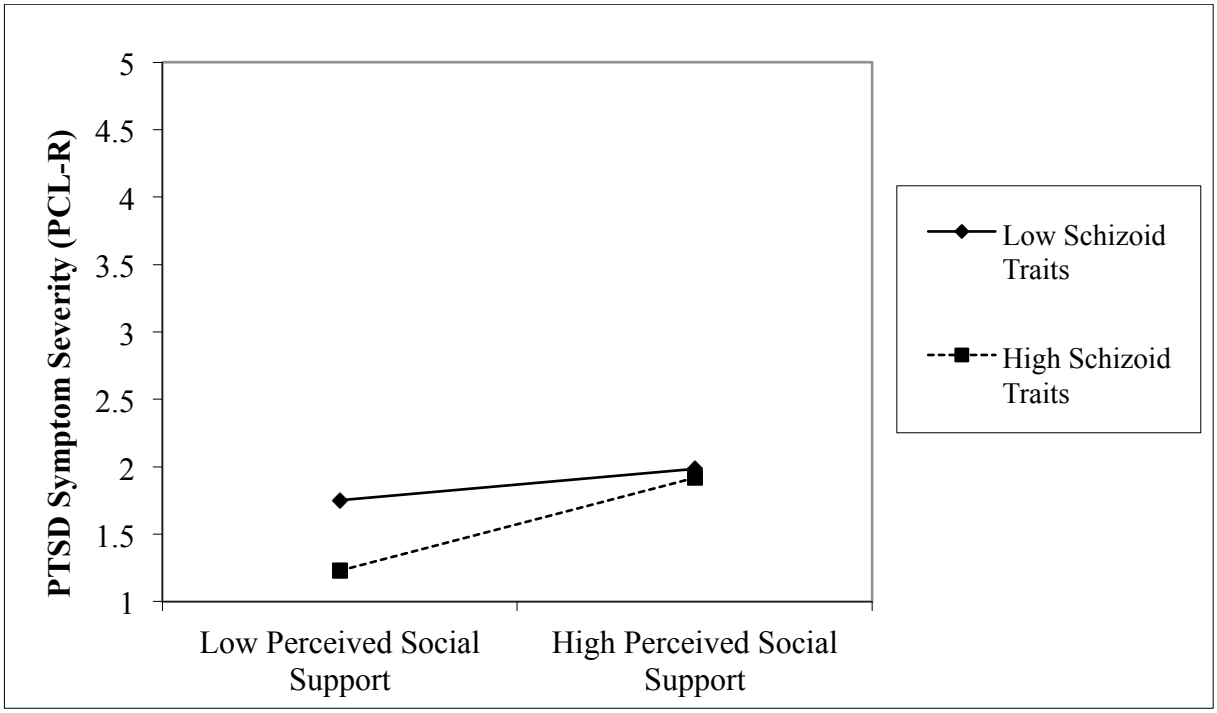
Relationship between Schizoid Personality Traits, Received Social Support, and PTSD (DSM-5)

Variable	β	R^2	F	$R^2\Delta$	FΔ
Block 1					
Age	-.028				
Sex	-.078				
Race/Ethnicity	.032	.008	.986	.008	.986
Block 2					
Age	-.023				
Sex	-.081				
Race/Ethnicity	.032				
Received SS	.026	.008	.801	.001	.251
Block 3					
Age	-.043				
Sex	-.078				
Race/Ethnicity	.064				
Received SS	-.012				
Schizoid Traits	-.224***	.056	4.454**	.048	18.914***
Block 4					
Age	-.046				
Sex	-.077				
Race/Ethnicity	.064				
Received SS	-.009				
Schizoid Traits	-.216***				
Received x Schizoid	.050	.059	3.870**	.002	.953

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

The interaction effect between perceived social support and schizoid personality traits was a significant predictor of PTSD symptomology for both DSM-IV-TR (PCL-R: $\beta = .114$; $p < .05$; PPTSD-R: $\beta = .128$; $p < .05$) and DSM-5 ($\beta = .119$; $p < .05$) diagnostic criteria of PTSD. Examination of Figure 1 illustrates this effect using the PCL-R as the measure of PTSD symptomology. Among persons with low levels of schizoid personality traits there is virtually no relationship between social support and PTSD whereas among persons with high levels of schizoid personality traits there is a strong positive relationship. Specifically, among those with high schizoid personality traits, higher perceived social support is associated with more severe PTSD symptomatology. The interaction effect between received social support and schizoid personality traits on PTSD symptomology was a significant predictor of PTSD symptom severity as measured by the PPTSD-R ($\beta = .101$; $p < .05$). When considered across type of support (i.e., perceived and received support) these results suggest that schizoid personality traits significantly moderate the relationship between social support and PTSD symptomology. Among persons with high levels of schizoid traits, received social support is unrelated to PTSD symptom severity.

Figure 1
Moderating Effect of Schizoid Personality Traits on the Relationship between Perceived Social Support and PTSD(PCL-R)



Hypothesis 2b: It was hypothesized that schizotypal personality traits partially moderate the relationship between social support and PTSD symptom severity after controlling for age, sex, and race/ethnicity. Separate analyses were conducted using the PPTSD-R, the PCL, and the DSM-5 symptom severity as the dependent variables. Findings from these analyses can be found in Tables 6a-6f.

Perceived social support was a significant predictor of PTSD as assessed by both DSM-IV-TR (PCL-R: $\beta = .210$; $p < .001$; PPTSD-R: $\beta = .168$; $p < .01$) and DSM-5 ($\beta = .218$; $p < .001$). Similar to previous findings, results indicate that increased perception of available social support is associated with lower PTSD symptom severity. Female sex was also predictive of higher PTSD symptom severity for all analyses of perceived social support. (See Tables 6a-6c)

Received social support was not a significant predictor of PTSD symptomology for any measure of PTSD used in this study (See Tables 6d- 6f).

Level of schizotypal personality traits was a significant predictor of PTSD symptomology in regressions with both perceived and received social support as control variables. For analyses involving perceived social support (Tables 6a-6c), schizotypal traits were significant predictors of PTSD symptom severity as measured by the PCL-R ($\beta = -.253$; $p < .001$), the PPTSD-R ($\beta = -.239$; $p < .001$) and DSM-5 symptom criteria ($\beta = -.254$; $p < .001$). For regression analyses including received social support, schizotypal traits were significant predictors of PTSD symptom severity as measured by the PCL-R ($\beta = -.300$; $p < .001$), the PPTSD-R ($\beta = -.278$; $p < .001$) and DSM-5 symptom criteria ($\beta = -.304$; $p < .001$). These results suggest presence of schizotypal personality traits is associated with increased PTSD symptom severity.

The interaction effect between perceived social support and schizotypal personality traits on PTSD symptom severity was not a significant predictor of PTSD symptom severity for any measure of PTSD measures used. Similarly, the interaction effect between received social support and schizotypal personality traits on PTSD symptom severity was not significant for any measure used to assess PTSD.

Table 6a

Relationship between Schizoid Personality Traits, Perceived Social Support, and PTSD (PPTSD-R)

Variable	β	R^2	F	$R^2\Delta$	FΔ
Block 1					
Age	-.050				
Sex	-.084				
Race/Ethnicity	.064	.013	1.668	.013	1.668
Block 2					
Age	-.027				
Sex	-.091				
Race/Ethnicity	.081				
Perceived SS	.216***	.059	5.850***	.046	18.164***
Block 3					
Age	-.038				
Sex	-.112*				
Race/Ethnicity	.094				
Perceived SS	.167**				
Schizotypal Traits	-.259***	.123	10.448***	.064	27.196***
Block 4					
Age	-.030				
Sex	-.114				
Race/Ethnicity	.091				
Perceived SS	.168**				
Schizotypal Traits	-.239***				
Perceived x Schizotypal	.072	.128	9.065***	.005	2.008

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Table 6b

Relationship between Schizotypal Personality Traits, Perceived Social Support, and PTSD (PCL-R)

Variable	β	R^2	F	$R^2\Delta$	FΔ
Block 1					
Age	-.032				
Sex	-.078				
Race/Ethnicity	.031	.008	.999	.008	.999
Block 2					
Age	-.004				
Sex	-.088				
Race/Ethnicity	.052				
Perceived SS	.261***	.075	7.554***	.067	26.971***
Block 3					
Age	-.016				
Sex	-.111*				
Race/Ethnicity	.066				
Perceived SS	.209***				
Schizotypal Traits	-.271***	.145	12.626***	.070	30.556***
Block 4					
Age	-.009				
Sex	-.113*				
Race/Ethnicity	.063				
Perceived SS	.210***				
Schizotypal Traits	-.253***				
Perceived x Schizotypal	.065	.149	10.819***	.004	1.673

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Table 6c

Relationship between Schizotypal Personality Traits, Perceived Social Support, and PTSD (DSM-5)

Variable	β	R^2	F	$R^2\Delta$	FΔ
Block 1					
Age	-.028				
Sex	-.078				
Race/Ethnicity	.032	.008	.986	.008	.986
Block 2					
Age	.001				
Sex	-.089				
Race/Ethnicity	.054				
Perceived SS	.269***	.079	8.003***	.071	28.384***
Block 3					
Age	-.011				
Sex	-.112*				
Race/Ethnicity	.069				
Perceived SS	.217				
Schizotypal Traits	-.273***	.150	13.154***	.071	31.173***
Block 4					
Age	-.004				
Sex	-.114*				
Race/Ethnicity	.065				
Perceived SS	.218***				
Schizotypal Traits	-.254***				
Perceived x Schizotypal	.070	.154	11.321***	.005	1.983

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Table 6d

Relationship between Schizotypal Personality Traits, Received Social Support, and PTSD (PPTSD-R)

Variable	β	R^2	F	$R^2\Delta$	FΔ
Block 1					
Age	-.050				
Sex	-.084				
Race/Ethnicity	.064	.013	1.668	.013	1.668
Block 2					
Age	-.055				
Sex	-.082				
Race/Ethnicity	.065				
Received SS	-.024	.014	1.301	.001	.207
Block 3					
Age	-.062				
Sex	-.107*				
Race/Ethnicity	.085				
Received SS	-.033				
Schizotypal Traits	-.292***	.098	8.064***	.084	34.648***
Block 4					
Age	-.060				
Sex	-.109*				
Race/Ethnicity	.083				
Received SS	-.032				
Schizotypal Traits	-.278***				
Received x Schizotypal	.071	.103	7.066***	.005	1.973

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Table 6e

Relationship between Schizotypal Personality Traits, Received Social Support, and PTSD (PCL-R)

Variable	β	R^2	F	$R^2\Delta$	FΔ
Block 1					
Age	-.032				
Sex	-.078				
Race/Ethnicity	.031	.008	.999	.008	.999
Block 2					
Age	-.028				
Sex	-.080				
Race/Ethnicity	.030				
Received SS	.023	.008	.795	.000	.187
Block 3					
Age	-.037				
Sex	-.108*				
Race/Ethnicity	.052				
Received SS	.013				
Schizotypal Traits	-.311***	.104	8.623***	.095	39.606***
Block 4					
Age	-.034				
Sex	-.109*				
Race/Ethnicity	.051				
Received SS	.014				
Schizotypal Traits	-.300***				
Received x Schizotypal	.054	.106	7.385***	.003	1.179

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Table 6f

Relationship between Schizotypal Personality Traits, Received Social Support, and PTSD (DSM-5)

Variable	β	R^2	F	$R^2\Delta$	FΔ
Block 1					
Age	-.028				
Sex	-.078				
Race/Ethnicity	.032	.008	.986	.008	.986
Block 2					
Age	-.023				
Sex	-.081				
Race/Ethnicity	.032				
Perceived SS	.026	.008	.801	.001	.251
Block 3					
Age	-.032				
Sex	-.108*				
Race/Ethnicity	.054				
Received SS	.016				
Schizotypal Traits	-.314***	.106	8.815***	.097	40.530***
Block 4					
Age	-.030				
Sex	-.110*				
Race/Ethnicity	.053				
Received SS	.017				
Schizotypal Traits	-.304***				
Received x Schizotypal	.051	.108	7.517***	.002	1.024

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Relative Strength of Perceived and Received Social Support on PTSD Symptom Severity

Hypothesis 3: After controlling for age, sex, and race perceived social support was a significant predictor of PTSD symptom as assessed by both the DSM-IV-TR (PCL-R: $\beta = .261$, $p < .001$; PPTSD-R: $\beta = .216$, $p < .001$) and DSM-5 ($\beta = .269$, $p < .001$) diagnostic criteria. Received social support was not a significant predictor of PTSD for any measure of PTSD used in the current study. These results indicate that perceived social support is a stronger predictor of PTSD symptom severity than received social support.

Correlation between Personality Traits and Trauma Exposure

Hypothesis 4: Elevations in schizotypal personality traits (assessed by both the PDQ-4+ and the SPQ) were predictive of *increased* trauma exposure (assessed by both total number of events and total different events). Elevations in schizoid personality traits were not significantly associated with trauma exposure in the study sample (See Table 7).

Table 7
Correlation between Personality Traits and Trauma Exposure

	Total # of Traumatic Events	**Total Different Events**
SPQ	.222***	.247***
PDQ-4+ Schizotypal	.124*	.173**
PDQ-4+ Schizoid	ns	ns

Note: * $p < .05$, ** $p < .01$, *** $p < .001$

Discussion

The present study examined the relationship between support (perceived and received) and PTSD symptom severity. Importantly, the present study was conducted to determine if schizoid and schizotypal traits moderate the relationship between social support and PTSD symptom severity. The extant empirical literature suggests that social support is generally beneficial for individuals following trauma exposure and leads to decreased severity of PTSD symptomology (King et al., 2008; Ozer et al., 2008). Furthermore, the perception that social support is available

appears to be more critical than the actual reception of support from others in reducing PTSD symptom severity (Ozer et al., 2008).

Data from the present study support the existing body of research echoing the superiority of perceived social support over received social support as a protective factor for PTSD development. Perceived social support was a significant predictor of PTSD for all measures of PTSD. Received social support was not a significant predictor of PTSD for any measure of PTSD symptom severity used in the current study. While at first blanche this finding is somewhat surprising, existing research suggests that the benefits of received social support on psychological dysfunction is not nearly as established as those associated with perceived social support (Gleason et al., 2008; Thompson, Medvene, & Freedman, 1995). Therefore, it is not surprising that received social support was not a significant predictor of PTSD symptomology as these results are fairly consistent with previous research.

Results from the current study indicate that elevations in schizoid personality symptoms were predictive of higher PTSD symptomology as indexed by all three measures of PTSD. These findings held after controlling for amount of social support (perceived and received). Similarly, results from the study also indicate that elevations in schizotypal personality traits are predictive of more PTSD symptomology. These findings held after controlling for level of support and were robust to type of PTSD instrument. This result is consistent with a modest body of literature suggesting that individuals who score highly on measures of schizotypal personality traits experience more severe PTSD symptomology (Berenbaum et al., 2008; Marzillier & Steel, 2007; Yen et al., 2002). Given PTSD symptoms are positively associated with schizoid and schizotypal personality traits, it might be logical to speculate that these personality traits are predictive of greater trauma exposure. In fact, elevations in schizotypal personality traits were

predictive of higher level of trauma exposure as measured by both *total number* of traumatic events and total number of unique *types* of events. Somewhat surprisingly, schizoid personality traits were unrelated to trauma exposure.

Finally, the central reason for conducting the current study was to test the hypotheses that schizoid and schizotypal personality traits moderate the relationship between social support and PTSD symptom severity. As previously discussed, individuals who exhibit schizoid personality traits tend to derive less satisfaction from social support than do individuals who exhibit lower levels of these traits (Horan et al., 2007). It follows, then, that these personality traits would affect the strength of the association between perception of support and PTSD. Results indicate that schizoid personality traits partially moderate the relationship between perceived and received social support and PTSD symptom severity. However, level of schizotypal personality traits was not a significant moderator of the relationship between either type of social support and PTSD symptomology.

Future Directions of Research

The results of this study illustrate the need for more extensive research to better understand the nature of the relationships among schizoid/schizotypal personality traits, social support, and PTSD. Since both schizoid and schizotypal personality traits were predictive of increased PTSD symptomology, future research should first seek to examine the mechanisms underlying this association. One logical possibility is that there are facets common to each of these personality traits that are predictive of PTSD (e.g. social anhedonia, affect constraint, lack of social relationships). Results from this, and many other studies (discussed above), clearly demonstrate that perceived social support is predictive of reduced PTSD symptom severity. Since individuals who score highly on measures of schizoid and schizotypal personality disorder tend to

experience fewer positive feelings from relationships, it follows these individuals may make fewer efforts to solicit social support which may, in turn, result in more severe PTSD. It should be noted, however, that this prediction is inconsistent with the hypotheses advanced in this study (i.e. provision of social support to persons with elevations in schizoid and schizotypal personality disorders would produce more symptoms of PTSD). Nonetheless, future research should examine this hypothesis.

One potential avenue to examine this relationship is to have individuals first complete measures of schizoid and/or schizotypal personality traits and PTSD symptom severity. Then, individuals would complete a task (e.g. brief cognitive task) during which the amount of social support provided would be experimentally manipulated. Following the task, individuals would be asked to rate their perception of support provided and rate how much support they received during the task. Results of this investigation may help to determine if individuals with higher levels of schizoid and schizotypal traits do perceive social support in a unique fashion and determine if this altered perception of support is indicative of elevated PTSD symptom severity.

While results from this study clearly demonstrate that schizoid and schizotypal personality traits are predictive of more severe PTSD, the relationships between these traits and specific PTSD symptom clusters are unclear. Posttraumatic stress disorder (PTSD) is not a unitary construct. Rather, it is composed of various factors including re-experiencing, situational avoidance, emotional numbing, and hyperarousal. While the specific factorial model of PTSD remains a lively topic of debate (Yufik & Simms, 2010) it is clear that the disorder is not unidimensional. Therefore, future researchers would be well advised to examine the relationships between schizoid and schizotypal personality traits and specific symptom clusters of PTSD (DSM-IV-TR: re-experiencing, avoidance, and hyperarousal; DSM-5: re-experiencing,

avoidance, alterations in cognition, and alterations in arousal). For instance, regarding DSM-IV-TR PTSD, it is logical to assume that schizoid and schizotypal personality traits would be significantly related to the avoidance symptom cluster and less related to the hyperarousal and re-experiencing clusters. This association should also be examined using the symptom clusters proposed in the upcoming DSM-5. A more speculative hypothesis regarding this relationship is that schizoid and schizotypal personality traits may be predictive of both the avoidance and alterations in cognitions symptom clusters as each contains symptoms related to impaired social relationships. Results from these future investigations would provide additional insight into the specific ways in which these personality traits are predictive of PTSD.

Given that both schizoid and schizotypal personality traits are associated with impaired social relationships, future research should seek to further examine why schizoid, and not schizotypal, personality traits significantly moderated the relationship between perceived social support and PTSD. One potential explanation for this finding is that the specific deficits in social support assessed in this study are not identical in schizoid and schizotypal personality. Schizoid personality traits include feelings of "aloofness" and reduced desire to engage in social relationships. Schizotypal personality traits include feelings of paranoia and anxiety in social relationships. It may be that the self-report measures of perceived and received social support used in the current study were not sensitive to differences in these types of social impairment (e.g., aloofness, paranoia) and, by extension, would not elicit the same results for schizoid and schizotypal traits. Another potential explanation for this finding may lie in the mechanism underlying the salutatory effects of perceived social support on PTSD symptom severity. It may be the case that individuals who exhibit more schizotypal personality traits may perceive support

in a way that is very different from individuals who exhibit more schizoid traits and, therefore, discrepant results regarding the moderating effect of these traits were obtained.

Limitations of the Present Study.

The current study had a number of limitations related to design and implementation. First, regarding design, the current study relied exclusively on self-report instruments to assess all study variables. This approach is more widely accepted for measurement of some constructs including social support, trauma exposure, and PTSD. However, a multimodal approach is considered to be the "gold standard" for the assessment of personality disorders and personality traits (Gannellen, 2007; Widiger & Samuel, 2009). Research suggests to first use self-report measures to identify potential subjects with elevated levels of critical personality traits and then use semi-structured interviews to verify the presence and severity of traits (Widiger, 2002). Failure to include these gold standard measures of schizoid and schizotypal personality disorders may explain some of the (potentially artificial) elevation in prevalence of both personality traits in the study sample. Research aiming to replicate the findings of this study should implement a multimodal assessment technique for all study variables to assess consistency of findings across assessment technique.

Second, despite the relatively diverse nature of the sample with respect to age, grade, and ethnicity, there was a disproportionate percentage of female participants in the study (73.6%), which may affect the generalizability of the results. With respect to the personality traits of interest, men are significantly more likely to be diagnosed with schizoid (Barzega, Maina, Venturello, & Bogetto, 2001) and schizotypal personality disorders (Carter, Joyce, Mulder, Sullivan, Luty, 1999) than women. Therefore, it would be expected that schizoid and schizotypal personality traits would be underrepresented in this sample relative to the general population.

However, this does not explain why higher than expected levels of schizoid and schizotypal traits were seen in the study sample. Furthermore, overrepresentation of women in the study may serve to explain the high prevalence of PTSD since PTSD is more common in females than males (Kessler et al., 1995) and these findings may not generalize to the population as a whole. Overrepresentation of females in the study sample may also have skewed study findings relative to social support. Females receive more social support (specifically emotional support) (Burda, Vaux, & Schill, 1984; Strokes & Wilson, 1984) and have higher perception of social support when compared to men (Burda, Vaux, & Schill, 1984; Vaux, 1985). Therefore, results from this study may be an overestimate of self-reported perception and reception of social support in the general population. Future investigations should seek to replicate the study findings using a sample containing a male/female ratio more reflective of the general population.

Third, related to study implementation, 14 items (#61-74) were missing from the Schizotypal Personality Questionnaire (SPQ) due to electronic error. Given this error, results obtained using the SPQ in analyses (e.g. relationship of schizotypal traits to social support and PTSD symptomology) must be interpreted with caution. While the remaining 60 items of the SPQ are internally consistent ($\alpha = .85$), issues of content validity and adequacy of content sampling remain a concern. Post-hoc examination of the 9 subscales on the SPQ indicates that omitted items were relatively evenly distributed across all subscales. Schizotypal personality traits were also assessed in the study via items on the PDQ-4+, and scores on this measure were significantly correlated with scores on the SPQ ($r = .61$; $p < .001$). This suggests that, while the investigation did use an inadvertently truncated measure, the results are not likely to differ significantly as a result. Ongoing research is aimed at addressing this specific limitation by replicating the current study with a complete SPQ measure.

Importance of Findings

The findings from this investigation are important for a variety of reasons. The investigation serves to confirm the salutatory effect of perceived social support on PTSD symptomology as well as the superiority of perceived social support over received social support. However, the more notable finding is that received social support is not significantly predictive of PTSD symptom severity. One possible treatment implication is that providers may be well advised to enhance their client's recognition that support is available rather than helping the client *receive* more support. Put in a slightly different way, these findings argue for the importance of incorporating a cognitive component in the treatment of PTSD (i.e., changing beliefs) rather than a purely behavioral component (i.e., developing skills to secure greater support).

Additionally, and perhaps more importantly, results from this study demonstrate that certain personality traits are related to PTSD symptom severity. Findings from this investigation suggest schizoid and schizotypal personality traits may be important to consider when determining the appropriate course of treatment of PTSD. Based on the results of this study, examination of the unique aspects of an individual's personality will prove valuable in tailoring certain aspects of treatment (e.g. behavioral activation, social engagement) and help to further shape our understanding of PTSD and social support as non-universal constructs. More specifically, since schizoid personality traits partially moderate the relationship between perceived social support and PTSD symptomology, providers may wish to consider carefully treatment decisions with schizoid patients that center on social relationships.

Findings from this research may also have implications for the new iteration of the DSM in terms of conceptualization of PTSD as well as personality disorders. Regarding PTSD, this study used both current (DSM-IV-TR) and proposed (DSM-5) diagnostic criteria in analyses and

found relatively consistent relationships between social support and PTSD suggesting there may be no significant difference in the beneficial effects of social support on PTSD in the newest iteration of the DSM. However, data from this study were recently used in a separate study examining the factor structure of PTSD via confirmatory factor analyses (CFA) comparing multiple models of PTSD defined by DSM-IV-TR and DSM-5 PTSD diagnostic criteria. Results of the study suggest a 5-factor solution (Elhai, Biehn, Armour, Klopper, Frueh, & Palmieri, 2011) composed of intrusion, avoidance, numbing, dysphoric arousal and anxious arousal best fits the data and not the currently proposed DSM-5 model (McCloskey, Lauterbach, Iwanicki, 2012). These disparate findings suggest there may be significant differences in PTSD symptoms as defined by DSM-IV-TR and DSM-5, but these differences are not impacted by social support as measured in this study.

Overall, the results from the present study provide support for the claim that perception that support would be available if needed, rather than actual reception of support is responsible for the salutatory effects of social support. In addition, results of this study suggest schizoid and schizotypal personality traits are associated with increased PTSD symptom severity and schizoid traits affect the strength of the relationship between perceived social support and PTSD symptom severity. Finally, results of this study indicate schizotypal, and not schizoid, personality traits are associated with reduced trauma exposure.

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Appendix A: Recruitment Script

IMPACT OF SCHIZOID AND SCHIZOTYPAL PERSONALITY TRAITS AND SOCIAL SUPPORT ON PTSD SYMPTOM SEVERITY

Research assistants,

Please use this script when presenting the research study to psychology classes. Answer any questions the students have regarding the study but please use the script when giving the presentation. Be sure to bring with you a sign-up sheet that has my email address (wmcclosk@emich.edu) at the top of the sheet. Once you have circulated the signup sheet, please make sure you collect it and bring it to my office or place it in an envelope and put it in my mailbox in the psychology office.

Thank you for all of your help,

Billy McCloskey
Psychology Doctoral Student
Eastern Michigan University

Thank you for allowing me to come in to your class today and talk to you about a research study you may be interested in participating in. I am conducting an investigation examining how different personality traits influence social support and posttraumatic stress disorder (PTSD) symptoms.

The entire project can be completed online and should take about 60 min to complete and can be done on any computer with an Internet connection. If you are interested in participating in this investigation, a sign-up sheet is circulating around the room on which you can put your name and "emich" email address. Once I have the list, I will email you a link to the survey, which you may complete at any time. Also, I will send you a link to the Eastern Michigan Sona system. Please sign up for a time to complete the survey. This time is just a placeholder so I know you want to participate and, once you have completed the study questions, I will note that you have participated to ensure that you receive your course credit or extra credit, at the discretion of your instructor. If you have any questions about the study, please feel free to contact me (the primary investigator). My email address is at the top of the sign-up sheet.

Participation in this research study is completely voluntary and, if you do decide to participate, you may withdraw from the study at any time without any penalty.

Once again, thank you very much for your time and please let me know if you have any questions.

Appendix B: Schizotypal Personality Questionnaire (SPQ)

		Responses	
1.	Do you sometimes feel that things you see on TV or read in the newspaper have a special meaning for you?	Yes	No
2.	I sometimes avoid going to places with many people because I know I will get anxious.	Yes	No
3.	Have you had experiences with the supernatural?	Yes	No
4.	Have you often mistakes objects or shadows for people, or noises for voices?	Yes	No
5.	Other people see me as slightly eccentric (odd).	Yes	No
6.	I like getting to know other people. (R)	Yes	No
7.	People sometimes find it hard to understand what I am saying.	Yes	No
8.	People sometimes find me aloof and distant.	Yes	No
9.	People don't usually talk about me behind my back (R).	Yes	No
10.	I am aware that people notice me when I go out for a meal or to see a film.	Yes	No
11.	I get very nervous when I have to make polite conversation.	Yes	No
12.	Do you believe in telepathy?	Yes	No
13.	Have you ever had the sense that some person or force is around you even though you cannot see anyone.	Yes	No
14.	People would say that I have pretty normal habits and interests (R)	Yes	No
15.	I prefer to be around other people (R)	Yes	No
16.	Sometimes I jump quickly from one topic to another when speaking.	Yes	No
17.	I am good at expressing my true feelings by the way I talk and look (R)	Yes	No
18.	Do you often feel that other people have it in for you?	Yes	No
19.	When people talk to me, they are pretty straightforward and don't say things with double meanings. (R)	Yes	No
20.	Do you ever get nervous when someone is walking behind you?	Yes	No
21.	Are you sometimes sure that other people can tell what you are thinking?	Yes	No
22.	When you look at a person, or yourself, in the mirror, do you ever see the face change right before your eyes?	Yes	No
23.	Sometimes people think that I am a little strange.	Yes	No
24.	I am mostly quiet when with other people.	Yes	No
25.	Sometimes I forget what I am trying to say.	Yes	No
26.	I laugh and smile a lot. (R)	Yes	No
27.	Do you sometimes get concerned that friends and/or coworkers are not really loyal or trustworthy?	Yes	No
28.	Have you ever noticed a common event or object that seemed to be a special sign for you?	Yes	No
29.	I feel comfortable meeting new people for the first time. (R)	Yes	No
30.	Do you believe in clairvoyance (psychic forces, fortune telling)	Yes	No
31.	I have never heard voices speaking my thoughts aloud (R).	Yes	No
32.	Some people think that I am a very bizarre person.	Yes	No
33.	I find it hard to be emotionally close to other people.	Yes	No
34.	I rarely ramble too much when speaking. (R)	Yes	No
35.	My non-verbal communication (smiling and nodding during a conversation) is not very good.	Yes	No
36.	I feel I can let my guard down around friends and others. (R)	Yes	No
37.	Do you see special meanings in advertisements, shop windows, or in the way things are arranged around you?	Yes	No
38.	Do you often feel nervous in a group of unfamiliar people?	Yes	No
39.	Can other people feel your feelings when they are not around you?	Yes	No
40.	Have you ever seen things invisible to other people?	Yes	No
41.	Do you feel that there are people you're really close to outside your immediate family or people you can confide in or talk to about personal problems? (R)	Yes	No
42.	Some people find me a bit vague and elusive during a conversation.	Yes	No

43.	I am pretty good at returning social courtesies and gestures.(R)	Yes	No
44.	Do you often pick up hidden threats or put-downs from what people say or do?	Yes	No
45.	When shopping, do you feel other people are taking notice of you?	Yes	No
46.	I feel comfortable in social situations involving unfamiliar people. (R)	Yes	No
47.	Have you had experiences with astrology, seeing the future, UFO's, ESP, or a sixth sense?	Yes	No
48.	Do everyday things seem unusually large or small?	Yes	No
49.	I like writing letters or emails to friends (R)	Yes	No
50.	I sometimes use words in unusual ways.	Yes	No
51.	I tend to avoid eye contact when conversing with others.	Yes	No
52.	Have you found that it is better to let other people know a lot about you? (R)	Yes	No
53.	When you see people talking together, do you often wonder if they are talking about you?	Yes	No
54.	I would not feel very anxious if I had to give a speech in front of a large group of people.	Yes	No
55.	Have you ever felt you are communicating with another person telepathically (by mind-reading)?	Yes	No
56.	Does your sense of smell sometimes become unusually strong?	Yes	No
57.	I tend to be very outgoing during social occasions. (R)	Yes	No
58.	I usually stay on topic during conversations. (R)	Yes	No
59.	I never feel that others have it in for me.(R)	Yes	No
60.	Do you sometimes feel that other people are watching you?	Yes	No
61.	Do you ever feel suddenly distracted by distant sounds that you are not normally aware of?	Yes	No
62.	I think having close friends is very important. (R)	Yes	No
63.	Do you sometimes feel that people are talking about you?	Yes	No
64.	Are your thoughts sometimes so strong that you can almost hear them?	Yes	No
65.	Do you often keep an eye out to stop people from taking advantage of you?	Yes	No
66.	Do you feel that you cannot get "close" to people?	Yes	No
67.	Most people would say I'm a pretty normal person.(R)	Yes	No
68.	I do not have an expressive or lively way of speaking.	Yes	No
69.	I feel like I am able to communicate clearly what I want to say to people. (R)	Yes	No
70.	I have some eccentric (odd) habits	Yes	No
71.	I feel comfortable talking to people that I don't know well. (R)	Yes	No
72.	People occasionally comment that my conversation is confusing.	Yes	No
73.	I tend to keep my feelings to myself.	Yes	No
74.	People never stare at me because of my odd appearance. (R)	Yes	No

Appendix C: Inventory of Socially Supportive Behaviors (ISSB)

Instructions: During the past month, please indicate the frequency with which someone…

0 = Not at all
1 = Once or Twice
2 = About once a Week
3 = Several times a week
4 = About every day

1. Gave you some information on how to do something.
2. Helped you understand why you didn't do something well.
3. Suggested some action you should take.
4. Gave you feedback on how you were doing without saying it was good or bad
5. Made it clear what was expected of you
6. Gave you information to help you understand a situation you were in
7. Checked back with you to see if you followed the advice you were given.
8. Taught you how to do something.
9. Told you who you should see for assistance.
10. Told you what to expect in a situation that was about to happen.
11. Said things that make your situation clearer and easier to understand.
12. Assisted you in setting a goal for yourself.
13. Told you what he/she did in a situation that was similar to yours.
14. Told you how he/she felt in a situation that was similar to yours.
15. Told you that he/she feels very close to you
16. Let you know that he/she will always be around if you need assistance.
17. Told you that you are OK just the way you are.
18. Expressed interest and concern in your well-being.
19. Comforted you by showing you some physical attention.
20. Told you that he/she would keep the things that you talk about private.
21. Expressed esteem or respect for a competency or personal quality of yours.
22. Was right there with you (physically) in a stressful situation.
23. Listened to you talk about your private feelings
24. Agreed that what you wanted to do was right.
25. Let you know that you did something well.
26. Participated in some activity with you to help you get your mind off things.
27. Talked with you about some interest of yours.
28. Joked and kidded to try to cheer you up.
29. Gave you over $25
30. Gave you under $25
31. Loaned you over $25
32. Loaned you under $25
33. Provided you with a place to stay.
34. Loaned or gave you something (a physical object other than money) that you needed.
35. Provided you with transportation
36. Pitched in to help you do something that needed to get done
37. Went with you to someone who could take action.
38. Provided you with a place where you could get away for a while
39. Looked after a family member while you were away
40. Watched after your possessions while you were away.

Appendix D: The Multidimensional Scale of Perceived Social Support (MSPSS)

Instructions: We are interested in how you feel about the following statements. Read each statement carefully. Indicate how you feel about each statement.
Circle the "1" if you Very Strongly Disagree
Circle the "2" if you Strongly Disagree
Circle the "3" if you Mildly Disagree
Circle the "4" if you are Neutral
Circle the "5" if you Mildly Agree
Circle the "6" if you Strongly Agree
Circle the "7" if you Very Strongly Agree

1. There is a special person who is around when I am in need.
   1 2 3 4 5 6 7

2. There is a special person with whom I can share my joys and sorrows.
   1 2 3 4 5 6 7

3. My family really tries to help me.
   1 2 3 4 5 6 7

4. I get the emotional help and support I need from my family.
   1 2 3 4 5 6 7

5. I have a special person who is a real source of comfort to me.
   1 2 3 4 5 6 7

6. My friends really try to help me.
   1 2 3 4 5 6 7

7. I can count on my friends when things go wrong.
   1 2 3 4 5 6 7

8. I can talk about my problems with my family.
   1 2 3 4 5 6 7

9. I have friends with whom I can share my joys and sorrows.
   1 2 3 4 5 6 7

10. There is a special person in my life who cares about my feelings.
    1 2 3 4 5 6 7

11. My family is willing to help me make decisions.
    1 2 3 4 5 6 7

12. I can talk about my problems with my friends.
    1 2 3 4 5 6 7

Appendix E: Purdue PTSD Scale – Revised (PPTSD-R)

Instructions: These questions ask about your reactions to the event listed at the bottom of the previous page. Please answer each question for how often each reaction occurred during the previous month.

In **the last month**, how often . . .	Not at all * * *	* * *	Sometimes * * *	* * *	Always * * *
1. were you bothered by memories or thoughts of the event when you didn't want to think about it?	A	B	C	D	E
2. have you had upsetting dreams about the event?	A	B	C	D	E
3. have you suddenly felt as if you were experiencing the event again?	A	B	C	D	E
4. did you feel very upset when something happened to remind you of the event?	A	B	C	D	E
5. did you avoid activities or situations that might remind you of the event?	A	B	C	D	E
6. did you avoid thoughts or feelings about the event?	A	B	C	D	E
7. did you have difficulty remembering important aspects of the event?	A	B	C	D	E
8. did you react physically (heart racing, breaking out in a sweat) to things that reminded you of the event?	A	B	C	D	E
Since the event . . .					
9. have you lost interest in one or more of your usual activities (e.g., work, hobbies, entertainment)?	A	B	C	D	E
10. have you felt unusually distant or cut off from people?	A	B	C	D	E
11. have you felt emotionally "numb" or unable to respond to things emotionally the way you used to?	A	B	C	D	E
12. have you been less optimistic about your future?	A	B	C	D	E
13. have you had more trouble sleeping?	A	B	C	D	E
14. have you been more irritable or angry?	A	B	C	D	E
15. have you had more trouble concentrating?	A	B	C	D	E
16. have you found yourself watchful or on guard, even when there was no reason to be	A	B	C	D	E
17. are you more jumpy or easily startled by noises?	A	B	C	D	E

Appendix F: Posttraumatic Stress Disorder Checklist Revised – Civilian Version - Revised

Instructions: Below is a list of problems and complaints that people sometimes have in response to stressful experiences. Please read each one carefully. Circle the response that indicates how much you have been bothered by that problem in the past month.

1. Repeated, disturbing *memories, thoughts,* or *images* of a stressful experience?
   1. Not at all 2. A little bit 3. Moderately 4. Quite a bit 5. Extremely

2. Repeated, disturbing *dreams* of a stressful experience?
   1. Not at all 2. A little bit 3. Moderately 4. Quite a bit 5. Extremely

3. Suddenly *acting* or *feeling* as if a stressful experience *were happening again* (as if you were reliving it)?
   1. Not at all 2. A little bit 3. Moderately 4. Quite a bit 5. Extremely

4. Feeling *very upset* when *something reminded you* of a stressful experience?
   1. Not at all 2. A little bit 3. Moderately 4. Quite a bit 5. Extremely

5. Having *physical reactions* (e.g., heart pounding, trouble breathing, sweating) when *something reminded you* of a stressful experience?
   1. Not at all 2. A little bit 3. Moderately 4. Quite a bit 5. Extremely

6. Avoiding *thinking about* or *talking about* a stressful experience or avoiding *having feelings* related to it?
   1. Not at all 2. A little bit 3. Moderately 4. Quite a bit 5. Extremely

7. Avoiding *activities* or *situations* because *they reminded you* of a stressful experience?
   1. Not at all 2. A little bit 3. Moderately 4. Quite a bit 5. Extremely

8. Trouble *remembering important parts* of a stressful experience?
   1. Not at all 2. A little bit 3. Moderately 4. Quite a bit 5. Extremely

9. *Loss of interest* in activities that you used to enjoy?
   1. Not at all 2. A little bit 3. Moderately 4. Quite a bit 5. Extremely

10. Feeling *distant* or *cut off* from other people?
    1. Not at all 2. A little bit 3. Moderately 4. Quite a bit 5. Extremely

11. Feeling *emotionally numb* or being unable to have loving feelings for those close to you?
    1. Not at all 2. A little bit 3. Moderately 4. Quite a bit 5. Extremely

12. Feeling as if your *future* will somehow be *cut short*? **
    1. Not at all 2. A little bit 3. Moderately 4. Quite a bit 5. Extremely

13. Trouble *falling* or *staying asleep*?
    1. Not at all 2. A little bit 3. Moderately 4. Quite a bit 5. Extremely

14. Feeling *irritable* or having *angry outbursts*?
    1. Not at all 2. A little bit 3. Moderately 4. Quite a bit 5. Extremely

15. Having *difficulty concentrating*?
    1. Not at all 2. A little bit 3. Moderately 4. Quite a bit 5. Extremely

16. Being *"super-alert"* or watchful or on guard?
    1. Not at all 2. A little bit 3. Moderately 4. Quite a bit 5. Extremely

17. Feeling *jumpy* or easily startled?

1. Not at all 2. A little bit 3. Moderately 4. Quite a bit 5. Extremely

18. Feeling *badly* about yourself, others, or the world in general? *
1. Not at all 2. A little bit 3. Moderately 4. Quite a bit 5. Extremely

19. *Unfairly* blaming yourself or others for the cause or the consequences of a stressful experience? *
1. Not at all 2. A little bit 3. Moderately 4. Quite a bit 5. Extremely

20. Consistent *negative* feelings such as fear, horror, anger, guilt, or shame? *
1. Not at all 2. A little bit 3. Moderately 4. Quite a bit 5. Extremely

21. Behaving *recklessly* of *self-destructively*? *
1. Not at all 2. A little bit 3. Moderately 4. Quite a bit 5. Extremely

*: New items included on the PCLR-C
**: Item found on the PCL-C but absent on the PCLR-C

Appendix G: Personality Disorders Questionnaire – Fourth Edition (PDQ-4+)
Instructions

The purpose of this questionnaire is for you to describe the kind of person you are. When answering the questions, think about how you have tended to feel, think, and act over the past several years. To remind you of this, on the top of each page you will find the statement: "Over the past several years..."

Please answer either True or False to each item.
Where: T (True) means that the statement is generally true for you.
F(False) means that the statement is generally false for you.

Even if you are not entirely sure about the answer, indicate "T" or "F" for every question.

For example, for the question:
xx. I tend to be stubborn. T F

If, in fact you have been stubborn over the past several years, you would answer True by circling T.

If, this was not true at all for you, you would answer False by circling F.

There are no correct answers.
You make take as much time as you wish.

1.	I avoid working with others who may criticize me.	T	F
2.	I can't make decisions without the advice, or reassurance, of others	T	F
3.	I often get lost in details and lose sight of the "big picture."	T	F
4.	I need to be the center of attention.	T	F
5.	I have accomplished far more than others give me credit for.	T	F
6.	I'll go to extremes to prevent those who I love from ever leaving me.	T	F
7.	Others have complained that I do not keep up with my work or commitments	T	F
8.	I've been in trouble with the law several times (or would have been if I had been caught).	T	F
9.	Spending time with family or friends just doesn't interest me.	T	F
10.	I get special messages from things happening around me.	T	F
11.	I know that people will take advantage of me, or try to cheat me, if I let them.	T	F
12.	Sometimes I get upset.	T	F
13.	I make friends with people only when I am sure they like me.	T	F
14.	I am usually depressed.	T	F
15.	I prefer that other people assume responsibility for me.	T	F
16.	I waste time trying to make things too perfect.	T	F
17.	I am "sexier" than most people.	T	F
18.	I often find myself thinking about how great a person I am, or will be	T	F
19.	I either love someone or hate them, with nothing in between.	T	F
20.	I get into a lot of physical fights.	T	F
21.	I feel that others don't understand or appreciate me.	T	F
22.	I would rather do things by myself than with other people.	T	F
23.	I have the ability to know that some things will happen before they actually do.	T	F
24.	I often wonder whether the people I know can really be trusted.	T	F
25.	Occasionally I talk about people behind their backs	T	F
26.	I am inhibited in my intimate relationships because I am afraid of being ridiculed.	T	F
27.	I fear losing the support of others if I disagree with them.	T	F
28.	I have many shortcomings.	T	F
29.	I put my work ahead of being with my family or friends or having fun.	T	F
30.	I show my emotions easily.	T	F
31.	Only certain special people can really appreciate and understand me.	T	F
32.	I often wonder who I really am.	T	F
33.	I have difficulty paying bills because I don't stay at any one job for very long.	T	F

34.	Sex just doesn't interest me.	T	F
35.	Others consider me moody and "hot tempered."	T	F
36.	I can often sense, or feel things, that others can't.	T	F
37.	Others will use what I tell them against me.	T	F
38.	There are some people I don't like.	T	F
39.	I am more sensitive to criticism or rejection than most people.	T	F
40.	I find it difficult to start something if I have to do it by myself.	T	F
41.	I have a higher sense of morality than other people.	T	F
42.	I am my own worst critic.	T	F
43.	I use my "looks" to get the attention that I need.	T	F
44.	I very much need other people to take notice of me or compliment me.	T	F
45.	I have tried to hurt or kill myself.	T	F
46.	I do a lot of things without considering the consequences.	T	F
47.	There are few activities that I have any interest in.	T	F
48.	People often have difficulty understanding what I say.	T	F
49.	I object to supervisors telling me how I should do my job.	T	F
50.	I keep alert to figure out the real meaning of what people are saying.	T	F
51.	I have never told a lie.	T	F
52.	I am afraid to meet new people because I feel inadequate.	T	F
53.	I want people to like me so much that I volunteer to do things that I'd rather not do.	T	F
54.	I have accumulated lots of things that I don't need but I can't bear to throw out.	T	F
55.	Even though I talk a lot, people say that I have trouble getting to the point.	T	F
56.	I worry a lot.	T	F
57.	I expect other people to do favors for me even though I do not usually do favors for them.	T	F
58.	I am a very moody person.	T	F
59.	Lying comes easily to me and I often do it.	T	F
60.	I am not interested in having close friends	T	F
61.	I am often on guard against being taken advantage of.	T	F
62.	I never forget, or forgive, those who do me wrong.	T	F
63.	I resent those who have more "luck" than I.	T	F
64.	A nuclear war may not be such a bad idea.	T	F
65.	When alone, I feel helpless and unable to care for myself.	T	F
66.	If others can't do things correctly, I would prefer to do them myself.	T	F
67.	I have a flair for the dramatic.	T	F
68.	Some people think that I take advantage of others.	T	F
69.	I feel that my life is dull and meaningless.	T	F
70.	I am critical or others.	T	F
71.	I don't care what others have to say about me.	T	F
72.	I have difficulties relating to others in a one-to-one situation.	T	F
73.	People have often complained that I did not realize that they were upset.	T	F
74.	By looking at me, people might think that I'm pretty odd, eccentric or weird.	T	F
75.	I enjoy doing risky things.	T	F
76.	I have lied a lot on this questionnaire.	T	F
77.	I complain a lot about my hardships.	T	F
78.	I have difficulty controlling my anger, or temper	T	F
79.	Some people are jealous of me.	T	F
80.	I am easily influenced by others.	T	F
81.	I see myself as thrifty but others see me as being cheap.	T	F
82.	When a close relationship ends, I need to get involved with someone else immediately.	T	F
83.	I suffer from low self esteem.	T	F
84.	I am a pessimist.	T	F
85.	I waste no time in getting back at people who insult me.	T	F
86.	Being around other people makes me nervous.	T	F
87.	In new situations, I fear being embarrassed.	T	F
88.	I am terrified of being left to care for myself.	T	F
89.	People complain that I'm "stubborn as a mule."	T	F

90.	I take relationships more seriously than do those who I'm involved with.	T	F
91.	I can be nasty with someone one minute, then find myself apologizing to them the next minute.	T	F
92.	Others consider me to be stuck up.	T	F
93.	When stressed, things happen. I get paranoid or just "black out."	T	F
94.	I don't care if others get hurt so long as I get what I want.	T	F
95.	I keep my distance from others.	T	F
96.	I often wonder whether my wife (husband, girlfriend, or boyfriend) has been unfaithful to me.	T	F
97.	I often feel guilty.	T	F
98.	I have done things on impulse (such as those below ú) that could have gotten me into trouble.	T	F

Check all that apply to you:

a. Spending more money than I have □
b. Having sex with people I hardly know □
c. Drinking too much □
d. Taking drugs □
e. Eating binges □
g. Reckless driving □

99. When I was a kid (before age 15), I was somewhat of a juvenile delinquent, doing some of the things below. T F

Now, Check° all that apply to you:

(1) I was considered a bully. . . . . □
(2) I used to start fights with other kids. . . . . □
(3) I used a weapon in fights that I had. . . . . □
(4) I robbed or mugged other people. . . . . □
(5) I was physically cruel to other people. . . . . □
(6) I was physically cruel to animals. . . . . □
(7) I forced someone to have sex with me. . . . . □
(8) I lied a lot. . . . . □
(9) I stayed out at night without my parents permission. . . . . □
(10) I stole things from others. . . . . □
(11) I set fires. . . . . □
(12) I broke windows or destroyed property. . . . . □
(13) I ran away from home overnight more than once. . . . . □
(14) I began skipping school, a lot, before age 13. . . . . □
(15) I broke into someone's house, building or car. . . . . □

Appendix H: Traumatic Events Questionnaire-Revised (TEQ-R)

*Note: the actual TEQ-R is an online measure including skip logic for items that are not applicable to participants. Due to the nature of the skip logic included in the TEQ-R, the full measure cannot be included in this appendix, but the entire measure can be found at the following web address:

http://www.surveymonkey.com/s.aspx?PREVIEW_MODE=DO_NOT_USE_THIS_LINK_FOR_COLLECTION&sm=OdM3j3wf%2bwFXf0sNCmd7j6cbuP%2bcsqYBkvo3VN0Fkoc%3d

1. Have you even been in, or witnessed, a **serious** industrial, farm, or car accident, or a large fire or explosion?

   a) How many times? None___ One___ Two ___ Three +___

****If none, skip to question #2. If multiple, survey will repeat after participant has answered each question related to the first event****

Please respond to the following questions regarding the FIRST event.

b) How old were you at the time of the event? _____

c) Were you injured during, or as a result, of the event?

Not at All Seriously

1 2 3 4 5 6 7

d) Did you feel your life was threatened by the event?

Not at All Seriously

1 2 3 4 5 6 7

e) How traumatic was the event for you **at the time of the event?**

Not at All Seriously

1 2 3 4 5 6 7

f) How traumatic is the event for you **now?**

Not at All Seriously

1 2 3 4 5 6 7

g) What was the event? _____

****Survey will repeat the above items if the participant indicated in question (a) if more than 1 event of this type was indicated****

2. Have you even been in a natural disaster such as a tornado, hurricane, flood, or major earthquake?

   a) How many times? None___ One___ Two___ Three +___

****If none, skip to question #3. If multiple, survey will repeat after participant has answered each question related to the first event****

Please respond to the following questions regarding the FIRST event.

b) How old were you at the time of the event? _____

c) Were you injured during, or as a result, of the event?

Not at All Seriously

1 2 3 4 5 6 7

d) Did you feel your life was threatened by the event?

Not at All Seriously

1 2 3 4 5 6 7

e) How traumatic was the event for you **at the time of the event?**

Not at All Seriously

1 2 3 4 5 6 7

f) How traumatic is the event for you **now?**

Not at All Seriously

1 2 3 4 5 6 7

g) What was the event? _____

****Survey will repeat the above items if the participant indicated in question (a) if more than 1 event of this type was indicated****

3. Have you ever been a victim of a violent crime such as, but not limited to, a rape, robbery, or assault?

a) How many times? None___ One___ Two ___ Three +___

****If none, skip to question #4. If multiple, survey will repeat after participant has answered each question related to the first event****

Please respond to the following questions regarding the FIRST crime.

b) How old were you at the time of the crime? _____

c) Were you injured during, or as a result, of the crime?

Not at All Seriously

1 2 3 4 5 6 7

d) Did you feel your life was threatened by the crime?

Not at All Seriously

1 2 3 4 5 6 7

e) How traumatic was the event for you **at the time of the crime?**

Not at All Seriously

1 2 3 4 5 6 7

f) How traumatic is the crime for you **now?**

Not at All Seriously

1 2 3 4 5 6 7

g) What was the crime? _____

****Survey will repeat the above items if the participant indicated in question (a) if more than 1 event of this type was indicated****

4. **As a child,** were you ever the victim of physical, sexual, or emotional abuse?

****If none, skip to question #5. If multiple, survey will repeat after participant has answered each question related to the first event****

Please indicate the type of abuse that you experienced (check all items that apply)

Physical Abuse_____

Sexual Abuse_____

Emotional Abuse_____

Please indicate your responses to the following questions based on the **PHYSICAL abuse** that you experienced.

a) How old were you when the abuse began?_____

b) How old were you when the abuse ended?_____

c) Were you physically injured as a result of the abuse?

Not at All Seriously

1 2 3 4 5 6 7

d) Did you feel your life was threatened by the abuse?

Not at All Seriously

1 2 3 4 5 6 7

e) How traumatic was the event for you **at the time of the abuse?**

Not at All Seriously

1 2 3 4 5 6 7

f) How traumatic is the abuse for you **now?**

Not at All Seriously

1 2 3 4 5 6 7

g) Was the assailant male or female? Male____ Female____

****Survey will repeat the above items if the participant indicated in the above question that he/she experienced multiple types of abuse****

5. **As an adult,** have you ever had any unwanted sexual experiences that involved the threat or use of force?

   a) How many times? None___ One___ Two ___ Three +___

****If none, skip to question #6. If multiple, survey will repeat after participant has answered each question related to the first event****

Please respond to the following questions regarding the FIRST event.

b) How old were you at the time of the experience? _____

c) Were you injured during, or as a result, of the experience?

Not at All Seriously

1 2 3 4 5 6 7

d) Did you feel your life was threatened by the experience?

Not at All Seriously

1 2 3 4 5 6 7

e) How traumatic was the event for you **at the time of the experience?**

Not at All Seriously

1 2 3 4 5 6 7

f) How traumatic is the experience for you **now?**

Not at All Seriously

1 2 3 4 5 6 7

g) What was the experience? _____

h) Was the assailant male or female? Male____ Female____

i) Please check all categories that describe your experience

____There was sexual penetration of the mouth, anus, or vagina.

____There was no sexual penetration of the mouth, anus, or vagina but the assailant attempted to force you to complete such an act.

____There was some other form of sexual contact (e.g. touched your sexual organs, forced you to touch assailant's sexual organs)

____No sexual contact occurred, however, the assailant attempted to touch your sexual organs or make you touch his/her sexual organs.

****Survey will repeat the above items if the participant indicated in question (a) if more than 1 event of this type was indicated****

6. **As an adult,** have you ever been in a relationship in which you were abused physically, sexually, or emotionally?

****If none, skip to question #7. If multiple, survey will repeat after participant has answered each question related to the first event****

Please indicate the type of abuse that you experienced (check all items that apply)

Physical Abuse_____
Sexual Abuse_____
Emotional Abuse_____

Please indicate your responses to the following questions based on the **PHYSICAL abuse** that you experienced.

d) How old were you when the abuse began?_____
e) How old were you when the abuse ended?_____
f) Were you physically injured as a result of the abuse?

Not at All Seriously
1 2 3 4 5 6 7

d) Did you feel your life was threatened by the abuse?

Not at All Seriously
1 2 3 4 5 6 7

e) How traumatic was the event for you **at the time of the abuse?**

Not at All Seriously
1 2 3 4 5 6 7

f) How traumatic is the abuse for you **now?**

Not at All Seriously
1 2 3 4 5 6 7

g) Was the assailant male or female? Male____ Female____

****Survey will repeat the above items if the participant indicated in the above question that he/she experienced multiple types of abuse****

7. Have you witnessed someone who was mutilated, seriously injured, or violently killed?

a) How many times? None___ One___ Two___ Three +___

****If none, skip to question #8. If multiple, survey will repeat after participant has answered each question related to the first event****

Please respond to the following questions regarding the FIRST event.

b) How old were you at the time of the event? _____
c) Were you injured during, or as a result, of the event?

Not at All Seriously
1 2 3 4 5 6 7

d) Did you feel your life was threatened by the event?

Not at All Seriously
1 2 3 4 5 6 7

e) How traumatic was the event for you **at the time of the event?**

Not at All Seriously
1 2 3 4 5 6 7

f) How traumatic is the event for you **now?**

Not at All Seriously
1 2 3 4 5 6 7

g) What was the event? _____

****Survey will repeat the above items if the participant indicated in question (a) if more than 1 event of this type was indicated****

8. Have you been in serious danger of losing your life or of being seriously injured?

a) How many times? None___ One___ Two___ Three +___

****If none, skip to question #9. If multiple, survey will repeat after participant has answered each question related to the first event****

Please respond to the following questions regarding the FIRST event.

b) How old were you at the time of the event? _____

c) Were you injured during, or as a result, of the event?

Not at All Seriously

1 2 3 4 5 6 7

d) Did you feel your life was threatened by the event?

Not at All Seriously

1 2 3 4 5 6 7

e) How traumatic was the event for you **at the time of the event?**

Not at All Seriously

1 2 3 4 5 6 7

f) How traumatic is the event for you **now?**

Not at All Seriously

1 2 3 4 5 6 7

g) What was the event? _____

****Survey will repeat the above items if the participant indicated in question (a) if more than 1 event of this type was indicated****

9. Have you received news of the mutilation, serious injury, or violent or unexpected death of someone close to you and were you responsible for dealing with the consequences?

a) How many times? None___ One___ Two___ Three +___

****If none, skip to question #10. If multiple, survey will repeat after participant has answered each question related to the first event****

Please respond to the following questions regarding the FIRST event.

b) How old were you at the time of the event? _____

c) What relation was this person to you?_____

d) How traumatic was the event for you **at the time of the event?**

Not at All Seriously

1 2 3 4 5 6 7

e) How traumatic is the event for you **now?**

Not at All Seriously

1 2 3 4 5 6 7

****Survey will repeat the above items if the participant indicated in question (a) if more than 1 event of this type was indicated****

10. Have you ever had any other **very traumatic** events like these?

a) How many times? None___ One___ Two ___ Three +___

****If none, skip to question #11. If multiple, survey will repeat after participant has answered each question related to the first event****

Please respond to the following questions regarding the FIRST event.

b) How old were you at the time of the event? _____

c) Were you injured during, or as a result, of the event?

Not at All Seriously

1 2 3 4 5 6 7

d) Did you feel your life was threatened by the event?

Not at All Seriously

1 2 3 4 5 6 7

e) How traumatic was the event for you **at the time of the event?**

Not at All Seriously

1 2 3 4 5 6 7

f) How traumatic is the event for you **now?**

Not at All Seriously

1 2 3 4 5 6 7

g) What was the event? _____

****Survey will repeat the above items if the participant indicated in question (a) if more than 1 event of this type was indicated****

11. Have you ever had any experiences like these that you feel you can't talk about?
(note: you do not have to describe the event)

a) How many times? None___ One___ Two ___ Three +___

****If none, skip to question #12. If multiple, survey will repeat after participant has answered each question related to the first event****

Please respond to the following questions regarding the FIRST event.

b) How old were you at the time of the event? _____

c) Were you injured during, or as a result, of the event?

Not at All Seriously

1 2 3 4 5 6 7

d) Did you feel your life was threatened by the event?

Not at All Seriously

1 2 3 4 5 6 7

e) How traumatic was the event for you **at the time of the event?**

Not at All Seriously

1 2 3 4 5 6 7

f) How traumatic is the event for you **now?**

Not at All Seriously

1 2 3 4 5 6 7

**** If participants endorsed multiple events, which was the worst? If they endorsed multiple items were they were referring to the same event or multiple events***

If they endorse any event, questions 12 doe not pop up

12. If you answered **NO** to all questions, describe briefly the most traumatic thing that has happened to you.

a) How many times? None___ One___ Two ___ Three +___

Please respond to the following questions regarding the event.

b) How old were you at the time of the event? _____

c) Were you injured during, or as a result, of the event?

Not at All Seriously

1 2 3 4 5 6 7

d) Did you feel your life was threatened by the event?

Not at All Seriously

1 2 3 4 5 6 7

e) How traumatic was the event for you **at the time of the event?**

Not at All Seriously

1 2 3 4 5 6 7

f) How traumatic is the event for you **now?**

Not at All Seriously

1 2 3 4 5 6 7

g) What was the event? _____

Appendix I: Study Description

This brief study description will be presented on the Eastern Michigan University SONA system to participants who are interested in participating in the research study.

Thank you for your interest in this research study aimed at examining the relationship between certain personality traits and social support. This is a brief study in which you will be asked to complete several surveys assessing personality traits and potentially stressful events you may have experienced.. This study is conducted exclusively online. When you register for a particular time slot, an email will be sent to you at the email address you provide containing a link to the surveys. You may complete the surveys at any time, regardless of the time at which you sign up. The entire study should take approximately 60 minutes to complete. Once again, thank you for your interest in this research investigation.

Appendix J: Informed Consent Document

Please read the following consent form and type your name in the box below if you choose to participate in the survey

Primary Investigator: Wilfred McCloskey, MA – Eastern Michigan University
Co-Investigator: Dean Lauterbach, PhD – Eastern Michigan University

The purpose of this research study is to gain a better understanding of the relationships between personality traits and social support. The study is designed to see if different personality traits have an effect on the relationship between social support and posttraumatic stress disorder (PTSD) symptom severity.

You must be at least 18 years of age to take part in this study. You will be asked to complete questionnaires about your demographic information, personality characteristics, and traumatic events you may have experienced during your life. After you electronically sign this document, you will be able to print a copy of the consent form, which includes follow-up contact information, if you need it. The approximate total time to complete the questionnaires is about 60 minutes.

All participants will provide a study identification code and only the code number will identify your questionnaire responses. The results will be stored electronically and separately from the consent form, which includes your name and any other identifying information on a secure computer. At no time will you name be associated with your responses to the questionnaires.

The only foreseeable risks to you by completing this survey are that you will be asked questions about traumatic events and some people do become emotional as a result. If you do wish to speak about these, or other events, with someone, counseling services are available. For Eastern Michigan University Students, CAPS offers free therapy sessions and can be reached by phone at (734) 487-1122. The Eastern Michigan University Psychology Clinic is available for low cost long term psychotherapy and may be reached by phone at (734) 487-4987. All of the responses you provide during the study will be kept completely confidential.

You will not receive any direct benefits from participating in this study; however, the results of this study may be helpful in determining how to better treat PTSD in special populations.

Participation in this study is voluntary. You may choose not to participate. If you do decide to participate, you can change your mind at any time and withdraw from the study without penalty

Results will be presented in aggregate form only and no names or individually identifying information will be revealed. Results may be presented at research meetings and conferences, in scientific publications, and as part of a master's thesis being conducted by the principal investigator.

If you have any questions concerning your participation in this study now or in the future, you can contact the principal investigator, Wilfred McCloskey, at (248) 763-0898 or via e-mail at wmcclosk@emich.edu or the co-investigator, Dr. Dean Lauterbach, at (734) 487-0785 or via email at dlauterba@emich.edu. This research protocol and informed consent document has been reviewed and approved by the Eastern Michigan University Human Subjects Review Committee for use from X to Y If you have questions about the approval process, please contact Dr. Deb de Laski-Smith, Interim Dean of the Graduate School and Administrative Co-Chair of UHSCR, by phone at 734-487-0042 or by email at human.subjects@emich.edu.

I have read all of the above information about this research study, including the research procedures, possible risks, side effects, and the likelihood of any benefit to me. The content and meaning of this information has been explained and I understand. All my questions, at this time, have been answered. I hereby consent and do voluntarily offer to follow the study requirements and take part in the study

NAME: _____
DATE: _____

Appendix K: Demographics Questionnaire

Please answer the following questions about yourself:

1. I am ____ years old

2. I am (please circle the choice that best describes your sex)

Male
Female
Transgender
Prefer not to Respond

3. I am (please indicate the choice that best describes your race/ethnicity)

African American (Black)
European-American (White)
Hispanic (Latino)
Asian-American
Native American
Pacific Islander
More than one
Other
Prefer not to respond

4. I am a (please indicate your current grade level)

Freshman
Sophomore
Junior
Senior
Graduate Student
Other

5. I am (please indicate your marital status)

Married
Single
Divorced
Widowed
In a relationship
Living with romantic partner

Appendix L:Debriefing Document

This investigation was designed to examine the relationship between personality traits and social support. More specifically, we are investigating if certain individuals get less benefit from social support than other people despite the fact that there is strong evidence to suggest most people to benefit from social support. The answers that you provided to the previous questions will help us to better understand the relationship between personality and the effectiveness of social support.

As mentioned in the consent form, if you have any questions or concerns about the research investigation, please contact the primary investigator, Wilfred McCloskey via email at wmcclosk@emich.edu or by phone at (248) 763-0898 or the faculty sponsor of the project, Dr. Dean Lauterbach via email at dlauterba@emich.edu or by phone at (734) 487-0785.

In addition, If you do wish to speak about any of the events you discussed during the survey, or any other events, with someone, counseling services are available. For Eastern Michigan University Students, CAPS offers free therapy sessions and can be reached by phone at (734) 487-1122. The Eastern Michigan University Psychology Clinic is available for low cost long term psychotherapy and may be reached by phone at (734) 487-4987. All of the responses you have provided during the study will be kept completely confidential.

Thank you for participating in the survey. You may not close your browser window.