

Summer 2016

The Relationship Between Traumatic Events And Psychological Symptomatology And The Moderating Role Of Mentalization

Sean Fowler

Georgia Southern Universtiy

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THE RELATIONSHIP BETWEEN TRAUMATIC EVENTS AND PSYCHOLOGICAL
SYMPTOMATOLOGY AND THE MODERATING ROLE OF MENTALIZATION

by

SEAN M. FOWLER

(Under the Direction of C. Thresa Yancey)

ABSTRACT

Traumatic events can lead to a number of disparate psychological responses. Ranging from diagnosable psychological symptomatology to little or no distress, the outcomes of potentially traumatic events are difficult to narrow down. Research on individual differences has indicated the potential for a number of characteristics that influence the relationship between traumatic events and psychological well-being. Some researchers have proposed that one of these factors, an individual's ability to mentalize, can influence the onset of psychological symptoms after a traumatic event. Mentalization is seen as one's ability to maintain a sense of self, which enables understanding and differentiating between one's own and others' psychological states such as cognitions and emotions. Mentalization is a multi-dimensional ability that varies greatly between individuals. Levels of mentalization are related to psychological symptoms, which is evidenced by specific levels of mentalization present for diagnoses such as schizophrenia and depression. One's ability to mentalize develops in an incremental manner and is thought to be influenced by life-events, such as trauma. The current research proposes that one's mentalizing ability plays a moderating role in the relationship between a history of traumatic events and the presence of psychological symptomatology. For some individuals, an increased occurrence of traumatic events is thought to possibly decrease one's ability to mentalize, and potentially lead to a higher likelihood of developing psychological symptoms. To examine the possible relationships among these constructs, archival data from undergraduate college students were analyzed to determine the role mentalizing plays in the relationship between a history of trauma and current psychological symptoms. It was posited that mentalization abilities, as measured by psychological mindedness, would have a significant moderating effect on the relationship between traumatic events and psychological symptomatology. Results indicated that psychological mindedness did not have a significant moderating effect. Findings are discussed, examining potential limitations of the current study and how they may contribute to the current findings.

Index Words: Trauma, Mentalization, Psychological Mindedness

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by

Sean M. Fowler

B.A., East Carolina University, 2009

M.S., Georgia Southern University, 2013

A Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree of

DOCTOR OF PSYCHOLOGY

STATESBORO, GEORGIA

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by

SEAN MAREON FOWLER

Committee: Thresa Yancey
Jeff Klibert
Lawrence Locker

Electronic Version Approved:
July 2016

ACKNOWLEDGEMENTS

First and foremost, I would like to thank my committee without whom this would not be possible. A special thanks to all of those that helped me along the way; my incredible cohort members, friends, and family. I would not be where I am were it not for the help from those I care about the most. A special cheers to Lilian and Jay for your patience. Alicia, thank you for sticking with me in this final lap. Last but not least, I want to thank my parents. You both kept me afloat when I felt I was sinking. I hope that this degree is a sign of my love for you both and the dedication that you taught me. Dad, I know that you are smiling, and I am too.

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CHAPTER 1: INTRODUCTION

Statement of Problem

Individual developmental trajectories can alter the short-term and long-term psychological impact of traumatic events (Bonanno, 2004). Research on resiliency and recovery led to the identification of moderating factors that prevent and/or reduce symptomatology following trauma. The aim of the current study was to gain a clearer picture of the possible moderating role that mentalization plays on the relationship between the presence of psychological symptoms and a history of trauma. Investigating this role was expected to facilitate a better understanding of the dynamics of trauma, and also lead to a greater understanding of the utility of mentalization-based techniques and programs in the treatment of trauma related symptoms. This may especially assist lower SES and rural populations where therapy resources may be scarce.

Background and Significance

Nearly half of all adults report at least one traumatic event at some point in their lives (Ozer, Best, Lipsey, & Weiss, 2008). Some individuals experience severe symptomology as a result of trauma while others may experience symptoms less intensely and recover in a short amount of time (Bonanno, 2004). Even following several decades of research, there has yet to be a satisfactory answer as to why some individuals experience greater psychological symptoms than others after experiencing trauma (Verhaeghe & Vanheule, 2005). The notions of *resilience* and *recovery* developed in psychology as distinct pathways to explain the link between trauma and psychological symptoms.

Resilience is defined as the ability to maintain equilibrium in the face of stressful life events, while recovery denotes the temporary loss of baseline psychological functioning,

followed by a period in which baseline levels of functioning return (Bonanno, 2004). Research on resilience led to the delineation of *protective-factors*, or positive psychological characteristics, that cultivate during development and lead to differing responses to stressful life events.

Examples of protective factors include hardiness, self-enhancement, and laughter (Bonanno, 2004). Bonnano (2005) asserts that some of the most basic resiliency factors in adults are the same factors that promote healthy development during childhood, such as stable and healthy relationships and the ability to have flexible affect regulation.

Stein (2006) proposed that the development of flexible mentalization in a secure attachment relationship possibly acts as a resiliency, or moderating, factor against the effects of traumatic events. Those who can more flexibly mentalize are thought to be able to cope with stressful situations more effectively by understanding their own thoughts and feelings in the context of the situation. Likewise, those who are more attuned to mentalization are thought to be more likely to seek out and utilize social support when faced with distress.

The current research sought to explore the extent that mentalization acts as a moderating factor in the presence of trauma. In other words, for those with a history of traumatic experiences, does the ability to mentalize differentiate between those who do and do not report psychological symptoms? *Mentalizing* is defined as the human tendency to seek descriptions and explanations of behavior in terms of states of mind (Fonagy, Bateman, & Luyten, 2011). The concept of mentalizing originally came from French psychoanalysts who noticed some patients struggle to symbolize mental states (Ringel, 2012). Today, the term mentalizing has been introduced into both clinical thinking and behavioral neuroscience.

Mentalization denotes the ability to infer the cause of one's own and others' behaviors in terms of cognitions and emotions. In other words, how do we attribute mental states as the cause

of specific behaviors? Every individual does this in a particular way, and this process of inferring intentionality to behaviors defines one's method of mentalization. Inflexible mentalizing can contribute to severe conditions that eventually lead to the need for treatment such as psychotherapy (Fonagy et al., 2011). Some research on schizophrenia (Chung et al., 2008), depression (Uekermann et al., 2008), and autism (Stichter et al., 2010) even suggests diagnosis-specific variances of mentalization.

The process of mentalization is a learned, rather than innate, mental operation. Research points to strong associations between the quality of attachment early in life and the passing of standard theory of mind tasks (de Rosnay & Harris, 2002; Raikes & Thomson, 2006). Also, the inclination for mothers to accurately read the mental states of their child or use "reflective functioning" is highly associated with both secure attachment and mentalization (Fonagy & Target, 1997; Meins et al., 2002; Slade, 2005). Secure attachment within the context of marked and contingent mirroring of the child's internal states thus facilitates the child's ability to properly mentalize.

Research on mentalization has had major implications for clinical research and practice. Though the concept originated primarily on psychoanalytic foundations, therapeutic implications seem to cut across theoretical modalities. Originally, the mentalization-based approach to therapy was created for treatment of Borderline Personality Disorder (BPD). The Mentalization-Based Treatment for Borderline Personality Disorder MBT-BPD (Bateman & Fonagy, 2004, 2006) has additionally been utilized in practice and positively evaluated in random controlled trials (Bateman & Fonagy, 1999, 2001, 2008). Little empirical research has been conducted to discover the extent to which mentalization relates to the treatment of trauma related symptoms.

Additional research on these relationships may lead to more individualized and effective treatments for psychopathology related to trauma.

Purpose

Past research examined mentalization-based techniques as a method of recovery from traumatic events, but little research exists on this construct as a form of resilience against psychological impairment. The current research examined mentalization through the concept of *psychological mindedness*, as a possible moderator to the outcomes of psychological symptoms in those with a history of traumatic events.

The current study investigated the relationship among mentalization (as measured by psychological mindedness), history of trauma, and psychological symptoms (anxiety, depression, stress, post-traumatic stress) in such a way to clarify the moderating role of mentalization between trauma and psychological symptoms. Additionally, this study examined possible differences in the moderating role of mentalization within rural versus non-rural participants.

Definition of Terms

Mentalization. Mentalization is defined as the ability to understand and differentiate between one's own and others' psychological states, and can be compared to the concept of theory of mind which is the ability to attribute mental states to self and others (Bateman & Fonagy, 2012a). Mentalization is thought to allow the individual to flexibly infer the causes of one's own or others' behaviors in terms of mental states such as thoughts and emotions.

Psychological Mindedness (PM). Appelbaum (1973) defines psychological mindedness (PM) as a person's "ability to see relationships among thoughts, feelings, and actions, with the goal of learning the meanings and causes of his experience and behavior" (p. 36). PM was originally conceptualized as a combination of four dimensions which were (a) the ability to see

relationships and to learn meanings and causes, (b) cognition (basic thinking skills are needed, as those with organic psychological problems for instance may lack psychological mindedness), (c) intuition and empathy, and (d) the goal of learning the meanings and causes of behavior.

Additionally, Farber (1985) believed that PM not only reflects the ability to see connections in one's own thoughts, feelings, and actions, but also in those of other individuals. Thus, PM can serve as an indicator of one's flexibility in mentalizing. Levels of PM were therefore expected to moderate the relationship between trauma and the presence of psychological symptoms.

Specifically, higher levels of PM were thought to decrease the likelihood of reporting psychological symptoms in those with a history of trauma.

Trauma. Trauma is generally viewed as the response to an event that threatens your life or physical integrity (Rothschild, 2011). For the purposes of this research, trauma was measured by the presence of one or more events that could potentially threaten the physical integrity, psychological integrity, or life of the participant. Such events included, but were not limited to, witnessing violence in the home, being intentionally physically injured, being a victim of childhood neglect, being sexually abused as a child, or being a victim of rape or other forms of sexual assault. In the current research, trauma was measured by the presence of a history of traumatic events and thought to have a significant relationship with the presence of psychological symptoms. However, the presence of mentalization was hypothesized to moderate the presence of psychological symptoms such that those who were more flexible at mentalizing were less likely to report psychological symptoms.

Psychological Symptoms. Psychological symptoms of trauma can vary greatly as some individuals develop severe psychological symptoms and others may not develop any at all (Bonanno, 2004). Early trauma is related to higher levels of depression and anxiety later in life

(Heim & Nemeroff, 2001; Hill, 2003). For the purposes of this study, depressive symptoms were defined as feelings of dysphoria, hopelessness, devaluation of life, self-deprecation, lack of interest, and anhedonia. Anxiety symptoms were defined as levels of increased autonomic arousal, skeletal muscle effects, and subjective experience of anxious affect. Stress symptoms were defined as sensitivity to levels of chronic non-specific arousal, which lead to difficulty relaxing as well a higher likelihood of being easily upset/agitated, irritable/over-reactive, and impatient. These three concepts, as measured by the Depression, Anxiety, Stress Scales (DASS), were combined and defined as the global distress score. Additionally, symptoms of Posttraumatic Stress Disorder (PTSD) were measured. The essential feature for a full diagnosis of PTSD includes the experiencing or potential experience of a trauma. While an individual's initial reaction to trauma frequently meets the criteria for acute stress disorder, the symptoms of PTSD and the relative prevalence of its symptoms may vary over time (American Psychiatric Association [APA], 2013). Symptoms of PTSD assessed in this research were defined as recurrent re-experiencing of the traumatic event (e.g., flashbacks, nightmares, and intrusive thoughts), avoidance of trauma-related stimuli and numbing of general responsiveness, and persistent hyperarousal.

Chapter 2: Literature Review

Trauma and Psychological Symptoms

Most adults will face one or more potentially traumatic events in the course of their lives (Bonnano, 2005). Trauma is generally viewed as the response to an experience that threatens your life or physical integrity (Rothschild, 2011). The DSM-5 (APA, 2013) has broadened the notion of what constitutes trauma, stating that it includes incidents that involve threat to physical well-being whether experienced directly, witnessed occurring to another individual, or hearing about happening to a close friend or relative.

Reactions to traumatic events vary from minor sleep difficulties, to problems concentrating, to symptoms of anxiety and depression. The traumatic events themselves can be widely varying and can include sexual assault, torture, combat, witnessing a death, emotional abuse, and health problems, among other events (Ozer, et al., 2003).

Traumata occurring early in life relate to the presence of adult psychopathology (Afifi, Enns, Cox, Asmundson, Stein, & Sareen, 2008; Kessler et al., 2010; Zlotnick, Johnson, Kohn, Vicente, Rioseco, & Saldivia, 2008; for alternative findings see Tedeschi & Calhoun, 1996). Similarly, adverse childhood experiences are more highly related to depression and anxiety scores than adverse experiences occurring in adulthood (Chu, Williams, Harris, Bryant, & Gatt, 2012). Edwards et al. (2003), in a study of 8667 adult participants, reported a strong relationship between the number of experienced childhood adversities and general mental health problems in adulthood. Likewise, individuals with early adverse experiences appear to be sensitized to the depressive effects of acute stress in adulthood (Dougherty et al., 2004; Kendler et al., 2004). In a large scale meta-analysis by Ozer, Best, Lispey, and Weiss (2008) reviewing 2,647 studies of

posttraumatic stress disorder (PTSD), findings suggest past trauma yields a significant relationship to the presence of PTSD.

Although exposure to trauma is common, only a minority of those exposed are likely to develop clinically significant psychopathology such as Post-Traumatic Stress Disorder (PTSD). The probability of developing PTSD following a trauma appears to vary from roughly 1% to 9% (Paris, 2000) to 8% to 24% (Lee & Young, 2001). Due to these findings, we can justify the assumption made by Verhaeghe and Vanheule (2005) that there is not a direct relationship between trauma and PTSD. Moderating factors may be at play in the presence of psychological symptoms following trauma.

Mentalization

Mentalization denotes the ability to understand and differentiate between one's own and others' psychological states as the possible cause of behaviors (Fonagy et al., 2011). For example, when an individual acts, the process of inferring psychological causes (e.g., emotions and/or cognitions) for those behaviors reflects the mentalizing process. The more possible causes of behavior indicate higher levels of flexibility. Clinically speaking, individuals who display flexible mentalizing tend to show genuine interest in the mental states of others, have the ability to regulate distress, are cognitively flexible, and have a willingness to convey responsibility for their own actions and thoughts, among many other observations (Luyten, Fonagy, Lowyck, & Vermote, 2012). These abilities depend upon multiple dimensions that shift in accordance with the individual's current state of mentalization. The current research hones in on the individual's interest and curiosity in the mental states of others as a measure of one's level of flexibility when mentalizing.

Mentalization has been compared to many other concepts in psychology, primarily the notion of theory of mind. Theory of mind is defined as an ability to impute mental states to self and to others and predict behavior from these mental states (Premack & Woodruff, 1978). In order to easily predict one's own and others' behaviors, people must be able to understand intrapsychic states of themselves and others (Leslie, 1987).

Although they share many of the same features, theory of mind and mentalization are viewed differently (Bateman & Fonagy, 2004). Modern theory of mind models require the utilization of isolated processors to obtain second order representational abilities, disqualifying any acknowledgement of the child's early relationships. False belief tasks, which are typically used to measure theory of mind, are influenced by the level of social interaction in the household, indicating an influence of social interaction the development of theory of mind (Jenkins & Astington, 1996; Perner, Ruffman, & Leekman, 1994).

It is the mirroring of the caregiver that is thought to enable the child to develop their abilities to *mentalize* (Ringel, 2012). With this, a child develops the ability to think about mental states as separate from, yet potentially causing, behaviors (Bateman & Fonagy, 2004). The complex nature of the mentalization process depends upon the interaction of multiple psychological dimensions. It is this developmental perspective that differentiates mentalization from theory of mind.

Mentalization as a Multi-Dimensional Construct

Mentalization is not a static trait, but is subject to change due to personal arousal, stress, and even psychotherapy. The variance of mentalization abilities are not found on one continuum, but rather on a number of different dimensions (Fonagy et al., 2011). Individuals can show

differing abilities in one or multiple dimensions. Based upon Luyten and colleagues' research (2012), four primary dimensions of mentalization are postulated:

1. Automatic – Controlled
2. Internally focused – Externally focused
3. Self-oriented – Other-oriented
4. Cognitive process – Affective process

These four dimensions make up the varying arrays of mentalization that can occur in individuals. Also, it is within these constructs that we see the relation of mentalization to other constructs, such as empathy, mindfulness, emotional intelligence, alexithymia, and psychological mindedness (Fonagy et al., 2011).

There is no one way of correctly mentalizing, but rather there is benefit from being able to properly shift between these primary dimensions. This ability to maintain plasticity in one's mentalization abilities has been dubbed *adaptive flexibility* (Allen, Fonagy, & Bateman, 2008). As we will discuss, it is often when an individual is "stuck" on one end of a dimension that we find pathology. Impairments can be found within particular polarities with some individuals, and not in others. The ability to maintain a balancing act on the domains reflects proper mentalization, and even reflects the methods of interventions found in mentalization based psychotherapy techniques (Bateman & Fonagy, 2012b).

Automatic – Controlled. When an individual mentalizes automatically, thinking takes place in a quick, implicit, and fast processing manner (Satpute & Lieberman, 2006). Controlled, or implicit, mentalization however requires a slower, more deliberate method of thinking that is primarily conscious and requires effortful attention (Allen et al., 2008).

Most of our daily mentalizing takes place in an automatic fashion; in other words, we rely heavily on often unreflective and implicit assumptions about ourselves, others, and ourselves in relation to others (Fonagy et al., 2011). Research shows that when in the context of secure attachment relationships, people tend to rely more heavily on automatic mentalization (Bartels & Zeki, 2004).

One important thing to understand is that neither automatic nor controlled mentalization implies a negative form of processing. Due to the fast paced social encounters in daily life, it is important that individuals are able to rely on automatic mentalization; however, the ability to shift to a controlled, deliberate and explicit process is needed at times (Fonagy et al., 2011). For instance, if an individual begins to cry after a discussion with their partner, the partner might ask what is on the individual's mind, what that individual is feeling, and possibly even what led to those thoughts and feelings. It is here that the shift to a controlled mentalization is helpful. Not only can controlled mentalization be difficult for some people, controlled mentalization is inhibited during times of high arousal and stress (Lieberman, 2007).

Internally focused – Externally focused. Research shows another polarity that points to a shift between being focused on internal aspects of one's self or others (i.e., thoughts, feelings) and being focused on external features such as one's own or others' physical features or behaviors. This seems to implicate why, in a clinical setting, some individuals have a hard time understanding the motives of others based upon internal features.

Fonagy and colleagues (2007) note that it is when a parent takes a pedagogical stance that a child is given the opportunity to deliberately focus on their own internal characteristics and thus differentiate these from their external characteristics. This ability allows the child to

internalize such a stance as taken by the parent, and thus apply this differentiation to others as well as themselves.

When the child is unable to appropriately label the affective state due to a lack of contingent mirroring by the caregiver, the ability to label and control emotions is undermined in later contexts. This may explain why those with somatic complaints have difficulty with or avoid linking internal and external features. Evidence for this is demonstrated in research connecting alexithymia, or the inability to properly distinguish and name emotions, with somatic and panic disorders (Cox, Swinson, Shulman, & Bourdeau, 1995).

Self-oriented – Other-oriented. The ability to differentiate between the features of others and oneself is at the core of mentalizing abilities. The ability to differentiate features of self and others is closely related to the initial capability to observe and internalize inner mental states through mirroring by the attachment figure. Evidence shows that these abilities have related neural substrates (Lieberman, 2007).

Some individuals show a limited ability to mentalize on both ends of the self and other continuum, while others show a limited ability on only one end. The relationships that occur between dimensions appear to imply a compensatory relationship. For example, an individual might be highly affected by the mood of those they are close to (hypermentalization in regard to other), and yet might find it hard to distinguish and describe their own emotions and thoughts (lack of mentalization of self).

Cognitive process – Affective process. Differing forms of psychopathology can be characterized by deficits on the continuum of cognitive versus affective processing. These deficits can take place in one or more of the phases of mentalizing internal states such as: (a) Naming internal states, (b) Differentiating internal states, and (c) Expressing these states (Allen

et al., 2008). These phases imply the complex shortfalls that can occur when attempting to integrate the cognitive and affective internal states, especially when in emotional distress.

Some individuals also give excessive weight to cognitive or affective experiences (Allen et al., 2008). In people with diagnoses of antisocial personality disorder or narcissistic personality disorder, we may find an undue shift to cognitive processes, and little if any understanding of affective experiences (Blair, 2008; Blatt, 2008). On the other end, individuals with borderline or histrionic traits may find themselves overwhelmed by their affective experiences and unable to cognitively label the experience (Blatt, 2008).

The integration of these mental states suggests full mentalization, whereupon an individual can give equal valence to their affective experience while maintaining a more logical cognizant stance. This notion is comparable to ideas in Dialectical Behavior Therapy (DBT) as proposed by Marsha Linehan (1993), especially her notion of *Wise Mind*. In Linehan's theory, the use of Wise Mind is found to be comparative, if not equal, to proper mentalization, which is a combination of both the affective and cognitive components of mentalizing.

Development of Mentalization

The human species' inherent wish to make sense of the world is reflected in children's early yearning to make tangible the psychological characteristics of themselves and those around them. Infants begin to show an interest in the faces and voices of others almost immediately after birth (Howe, 2011) and also seem to have an inherent interest in being understood (Fonagy et al., 1995). This innate tendency to understand one's own and other's motives, behaviors, and thought processes has been called infant intersubjectivity (Trevarthen & Aitken, 2001).

Parents are fairly good at understanding what their babies are feeling (Tronick, 1989). Often times, the parent will even mimic the baby's display of emotions with the intention of

regulating the infant's feelings (Gergely & Watson, 1996). This mirroring by the caregiver is thought to enable the child to develop self and other mental representations.

Following Gergely and Watson (1996), it is assumed that individuals are not intrinsically aware of their own affect states. When a parent mirrors the emotions of a child, the child successfully develops a second order representation of the emotion, and thus a sense of agency enabling the child to better control affect. The internalization of the parental response comes to represent an internal mental state, "with the mother's empathic face as the signifier and the emotional sensation as the signified" (Bateman & Fonagy, 2004, p. 65). It is this "social biofeedback" model that is viewed as the catalyst for affect regulation and self/other knowledge.

The clear and contingent modeling of the child's behavior by the caregiver as part of a securely attached relationship allows the child to develop an understanding of their own and others' psychological states (Meins et al., 2002). Research demonstrates the positive relationship between the quality of the attachment and successfully completing theory of mind tasks (Rosnay & Harris, 2002; Fonagy & Target, 1997; Harris, 1999; Meins et al., 1998; Meins et al., 2002; Ontai & Thompson, 2002; Raikes & Thompson, 2006; Steele, Steele, Croft, & Fonagy, 1999; Symons, 2004; Thompson, 2000). Limited findings also show restricted theory of mind abilities in maltreated children (Cicchetti et al., 2003; Pears & Fisher, 2005). In short, research demonstrates secure attachment as well as contingent mirroring by the caregiver are catalysts for self/other understanding.

Psychological Mindedness

One method of measuring mentalization abilities is by way of measuring what is known as *psychological mindedness* (Luyten, et al., 2012). Appelbaum (1973) defines psychological mindedness (PM) as a person's "ability to see relationships among thoughts, feelings, and

actions, with the goal of learning the meanings and causes of his experience and behavior” (p. 36). Although psychological mindedness does not measure every dimension of the mentalization construct, it has relevance in psychotherapy and application of mentalization-based techniques.

Whether directly or indirectly, psychotherapy seeks to help individuals better understand the psychological meanings and connections of thoughts, actions, and feelings. Although some argue the nature of these meanings, such as defined by early relations in psychoanalysis or by cognitive distortions in CBT, most would agree on the importance within their modality in helping someone to better understand the nature of these psychological phenomena.

PM was originally considered to be the absence or presence of each of the four dimensions that define the concept. These four dimensions are (a) the ability to see relationships and to learn meanings and causes, (b) cognition (basic thinking skills are needed, as those with organic psychological problems for instance may lack psychological mindedness), (c) intuition and empathy, and (d) the goal of learning the meanings and causes of behavior. An added assumption of PM was made by Farber (1985) who felt that PM not only reflects the ability to see connections in one’s own thoughts, feelings, and actions, but those of other individuals as well. A more recent incarnation on the concept by Conte et al. (1990) posits that PM also implies a desire to understand self and others, a belief in the benefits in discussing one’s problems, and openness to new ideas. Utilizing these definitions of PM, Conte and colleagues (1990) created the Psychological Mindedness Scale (PMS), which will be revisited later.

The presence of PM conveys a capacity to tolerate psychological conflict through intrapsychic methods rather than more primitive methods such as somatization (Shill & Lumley, 2002). Psychological mindedness can be viewed as the inverse of *alexithymia*, which is an inability to properly identify and name emotional states (Taylor, Bagby, & Parker, 1997).

Research shows that high scores on measures of PM negatively correlate to scores of alexithymia (Shill & Lumley, 2002). Low scores on PM scales also correlate to a higher likelihood to somaticize distress, use mind-altering substances, and suffer from anxiety and stress (Krystal, 1998; Krystal & Raskin, 1970; Taylor & Taylor, 1997). Likewise, changes in PM are significantly associated with positive outcomes in psychotherapy (McCallum, Piper, Ogradniczuk, & Joyce, 2003).

Psychological Mindedness as a Measure of Mentalization

The concepts of mentalization and psychological mindedness share a substantial level of overlap (Choi-Kain & Gunderson, 2008). PM dimensions such as interest in how the mind works, how we and others make connections between thoughts, emotions and behaviors, as well as intuition and empathy all seem to overlap with the construct of mentalization. However, there are some discrepancies that need to be addressed. First, PM primarily relates to explicit modes of thinking, as opposed to mentalization which focuses on both explicit and implicit thinking. Secondly, PM concerns itself primarily with interest in the mental states of others, but does not explicitly measure one's actual ability to discern those mental states (Choi-Kain & Gunderson, 2008).

The Psychological Mindedness Scale (PMS; Conte et al., 1990; Conte, Ratto, & Karasu, 1996) is proposed to be an adequate measure of mentalization abilities based upon its ability to assess the dimensions of self/other, cognitive/affective and the internal psychological end of the internal/external continuum (Luyten et al., 2012). Research demonstrates that the PMS is able to assess an individual's ability to be aware of psychological constructs in one's self and others (Beitel, Ferrer, & Cecero, 2005). Likewise, low scores of PM highly correlate with the presence of perceived early parental rejection; furthering the assumption that it is within these early

interactions that one develops PM (Alvarez, Farber, & Schonbar, 1998). Beitel and Cecero (2003) found high scores of PM related to secure adult attachment, negatively correlated to high Neuroticism, and positively correlated to Openness to Experience on the NEO-Five Factor Inventory. In light of the current research, the PMS was used due to the ease of use and integration into an online survey system.

Several studies examined the obverse of PM, alexithymia. The presence of alexithymia is linked to symptoms of anxiety (Berthoz, Consoli, Perez-Diaz, & Jouvent, 1999) and is implicated in the onset of panic disorder and social phobia (Cox et al., 1995). Decreases in alexithymia are reported following psychotherapy in people with depression (Ozsahin, Uzun, Cansever, & Gulcat, 2003; Spek, Nyklek, Cuijpers, & Pop, 2008) and obsessive-compulsive disorder (Rufer et al., 2006).

Mentalization and Trauma

The interaction between trauma and mentalization is a complex one. Early trauma within the attachment relationship often correlates to disturbances in the development of proper mentalization abilities (Allen, Lemma, & Fonagy, 2012). Premature conflicts in attachment relationships can increase the likelihood of failures in mentalization that can manifest throughout the lifespan. Thus, Fonagy and Target (1997) proposed a dual liability stemming from adverse childhood experiences that trigger not only distress but also disturb the ability to properly develop mentalizing abilities.

Since mentalization is not a static trait, we understand that shifts in mentalization occur based upon levels of arousal and distress (Fonagy et al., 2011). Moreover, persons with a long history of excessive arousal, such as what might occur in early traumatic events, may become sensitized: their threshold for shifts in mentalization is lowered (Mayes, 2000). Such traumatized

persons are more susceptible to arousal, and their mentalizing capacities are more easily lost in the face of arousal.

At the level of cognition, the ability to mentalize implies an ability to adequately develop secondary representations of emotional states such as facial expressions or language (Gergely & Watson, 1996). Not only will there be a secondary conceptual representation of the mental state, but the individual also will be able to attribute to themselves the dispositional information accompanying that emotion, which results in an ability to signify and predict likely behavior while in that state. This implies a scenario much like Bion (1962) postulated whereupon the act of early maternal containment allows children the ability to develop reflection upon and processing of their own experience in their own words, think their own thoughts, and feel their own feelings.

Stein (2006) describes the resiliency function of mentalization by stating how it can act as a “filtering system...” which would “...allow children to endure and metabolize” adverse experiences (p. 311). The higher likelihood of understanding the experience and how it affects themselves and others could lead to a decreased probability of the event having a negative toll on self-concept and expectations of others. Also, the inherent openness to discuss and understand one’s own and others’ emotional states could also lead to a higher likelihood of seeking help from social relations when faced with a potentially traumatic event.

High levels of psychological mindedness have been found to reflect a cognitive style that is open, contains a sense of personal agency, and has a propensity for reality-oriented thinking (Beitel et al., 2005). With respect to PTSD in particular, these personality features are seen as resiliency factors in the face of psychological trauma (Staab, Fullerton, & Ursano, 1999). Additional research led to the notion of psychological mindedness resulting in stronger coping

abilities through personality characteristics such as extraversion, openness, agreeableness, and conscientiousness as well as more problem-focused coping in the face of adverse events (Nyklíček, Poot, & van Opstal, 2010).

Rurality and Psychological Outcomes

Individuals from rural areas tend to report more instances of stressors than urban groups (Hoyt, Conger, Valde, & Weihs, 1997). Additionally, individuals with low socioeconomic status (SES) are more likely than those with high SES to experience potentially traumatic events (Costello, Erkanli, Fairbank, & Angold, 2002). Considering that the presence of stressors and potentially traumatic events relates positively to the incidence of psychopathology, it can be speculated that individuals from rural areas are at higher risk for trauma related psychological symptoms. This is most notable in light of research findings that show individuals in rural areas utilize mental health services significantly less often than their non-rural counterparts (Pettersen, Williams, Hauenstein, Rovnyak, & Merwin, 2009). Additionally, mentalization abilities could be particularly hindered in low SES groups where secure parental attachment may be difficult (Ostler, Bahar, & Jessee, 2010; Twemlow, Fonagy, Sacco, Vernberg, & Malcolm, J. 2011). Research indicates that secure attachment may be especially difficult due to lack of parental social support, the presence of psychological symptoms, low extraversion, and other contextual factors (Fish, 2001). Due to a significant lack of research on mentalization in the context of rural versus non-rural populations, it was valuable to discover whether there were any significant differences between these groups in the current study. An exploratory component of the current study observed the extent to which moderating effects vary between rural versus non-rural populations.

Current Study

To summarize, based upon past research, the presence of a history of potentially traumatic events was thought to relate positively to the existence of psychological symptoms. Likewise, mentalization appeared to relate positively to lowered levels of negative psychological symptoms. Based upon past research and mentalization theory, the development of proper mentalization was thought to act as a protective factor for psychological symptoms in those with a history of trauma. Therefore in the current study, mentalization, as measured by psychological mindedness, was hypothesized to moderate the relationship between a history of trauma and current self-report of overall psychological functioning (depression, anxiety, and stress) and symptoms of PTSD. Additional exploratory analyses were conducted to examine any possible differences on outcome variables between rural and non-rural participants.

CHAPTER 3: METHOD

Participants

The archival data used were collected from 929 undergraduate college students at a regional university in the southeast United States who were enrolled in psychology courses. Participants were between the ages of 18 and 22. The majority of respondents reported being White (64.8%) and a large percentage of respondents were African American (22.4%). Within the sample, 55.8% of respondents identified as female, 31.3% identified as male, and 0.4% identified as other. Additionally, 61.3% of respondents reported being raised non-rural environments, while 38.7% of respondents reported being raised in rural environments.

In exchange for participation, students were given one unit of credit toward their research participation requirement in certain courses. Participation in this study involved completing an online survey including a demographic questionnaire, a trauma questionnaire, the Depression Anxiety Stress Scale (DASS), the Psychological Mindedness Scale (PMS), and the PTSD Checklist – Civilian Version (PCL-C).

Procedure

Students who chose to participate in this study were provided with a web link directing them to Qualtrics.com, a data collection site utilized by the university. Students initially completed an electronic informed consent. Since written signatures were not possible for this online survey, students who wished to continue with the survey indicated their consent by clicking a button labeled “I give my consent to participate.” Students who chose not to participate clicked a button labeled “I do not give my consent to participate” directing them away from the website. Students were allowed to discontinue participation in the study at any point during the survey while still receiving credit for participation. Students who voluntarily provided

consent completed a demographic questionnaire (e.g., age, race, gender) and self-report surveys. Once surveys were completed, students were debriefed to the nature and purpose of the study, and were given information on how to access free to low-cost mental health services, should they choose to. Finally, students were given instructions on how to receive credit for participating in the study.

Data Storage. Initially, all data were stored on the Qualtrics website. After completion of data collection, the primary researcher transferred the data to an SPSS data file. Once the data were saved to SPSS, the primary researcher deleted all data from the Qualtrics website. Data transferred to SPSS are being stored on a secure, password-protected hard drive for seven years.

Measures

Psychological Mindedness Scale (PMS; Conte, Ratto, & Karasu, 1996). The PMS is a self-report measure used to assess the extent to which an individual is able to reflect upon the meaning behind behaviors, thoughts, and feelings of oneself and others. The PMS consists of 45 items scored on a 4-point Likert scale ranging from “strongly agree” to “strongly disagree.” Twenty items are reverse-scored, and a participant’s score on the scale is the sum of all item responses. Scores of the PMS range from 45 to 180, with greater scores indicating a greater level of psychological mindedness. The PMS was normed on an outpatient sample and demonstrated solid internal consistency ($\alpha = .87$; Conte et al., 1996). Internal consistency of the PMS was found to be strong in the current study as well ($\alpha = .85$). For the purposes of this current research, analyses utilized the total score of the PMS. Likewise, due to the reversal of Likert scores by the survey program, higher scores on the PMS were indicative of lower levels of PMS.

Depression Anxiety Stress Scales (DASS; Lovibond & Lovibond, 1995a). The DASS is a 42-item assessment measuring recent (“over the past week”) symptoms of depression,

anxiety, and stress. Each of the three scales consists of 14 items. Participants respond to each item using a four-point Likert scale, where 0 = did not apply to me at all and 3 = applied to me very much, or most of the time (the range of scores for each scale is 0 - 42). Higher overall scores on the DASS indicate greater levels of psychological distress (depression, anxiety, stress). The DASS has strong internal consistency among its three subscales as well as strong convergent validity with other related assessments (Lovibond & Lovibond, 1995b). Internal consistency for the DASS in the current study was excellent ($\alpha = .97$). For the purposes of the current research, a global distress score was created as an indication of the participant's overall level of psychological functioning. This score was a combination of the depression, anxiety, and stress subscales of the DASS.

PTSD Checklist – Civilian Version (PCL-C; Weathers, Litz, Huska, & Keane, 1994).

The PCL-C is a 17-item self-report rating scale that parallels diagnostic criteria B, C, and D for Post-Traumatic Stress Disorder (PTSD), as described in the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; American Psychiatric Association, 1994). Participants endorse the level of distress that co-occurred with each reported PTSD symptom over the prior 30 days. A five-point likert scale is used for responding (1 = not at all; 5 = extremely). Higher overall scores on the PCL-C indicate higher levels of psychological distress that correlate with symptoms of PTSD.

In a study of trauma-exposed college students, the PCL-C demonstrated good retest reliability and internal consistency, as well as adequate convergent and discriminant validity (Adkins, Weather, McDevitt-Murphy, & Daniels, 2008). In another study of undergraduate students, the PCL-C demonstrated excellent internal consistency ($\alpha = .94$) and good convergent

and discriminant validities (Ruggiero et al., 2003). The internal consistency in the current study was also very high ($\alpha = .94$).

Trauma Questionnaire. In order to assess for a history of traumatic events, a self-report questionnaire was utilized for the current research. The questionnaire consists of 21 items and participants indicated whether or not a particular event ever occurred in their lifetime.

The events on the scale are potentially traumatic occasions in the participant's life. Examples of these events involve witnessing domestic violence (e.g., "Have you ever observed family members hitting, kicking, or punching each other?"), child physical abuse (e.g., "Did a parent, stepparent, or guardian ever injure you on purpose?"), and sexual abuse or rape (e.g., "Has anyone ever made you have intercourse, oral, or anal sex against your will?"). Additionally, participants were asked global questions in regard to any incidents not specifically covered in the assessment (e.g., "Have you ever been in any other situation in which you feared you might be killed or seriously injured?", "Have you experienced any other situation that was not already asked about which was extraordinarily stressful?").

For each item, participants indicated either "yes" or "no" for the event. For the purposes of the current study, indication of a "yes" to any such event constituted an individual with a history of a traumatic event. Answers of "yes" were calculated and equal to 1 point on the scale. Totals were calculated out of 21 to create a traumatic event score.

CHAPTER 4: RESULTS

Missing Data Analysis

Of the original 929 surveys administered, 830 people responded to at least one question. Of the 830 responses, 501 (60.36%) cases had no missing values for any variables entered into moderated regression analyses: Depression Anxiety Stress Scales (DASS) total score, Post-Traumatic Stress Disorder Checklist – Civilian Version (PCL-C) total score, Trauma questionnaire total score, Psychological Mindedness Scale (PMS) total score, and Rurality.

Little's Missing Completely at Random (MCAR; Little, 1988) test was performed on total DASS score, total PCLC score, total Trauma score, total PMS score, Rurality, and all variables involved in the creation of the DASS, PTSD, and PMS scales. The test failed to reject the null hypothesis that data were missing completely at random at the 0.05 level ($X^2 = 22092.73$, $df = 21817$, $p = 0.09$), suggesting that multiple imputation was appropriate to deal with the missing values in the dataset. Multiple imputation seeks to reduce information loss due to missing values by simulating multiple sets of complete data (Fichman & Cummings, 2003). In each imputed dataset, missing values were filled using plausible values based on information contained in non-missing values of the original dataset. SPSS automatically selected the method and models for multiple imputation. The fully conditional specification method (Metropolis, Rosenbluth, Rosenbluth, Teller, & Teller, 1953), was used. Missing values for the scale variables, DASS score, PCL-C score, Trauma score, and PMS score, were imputed using a linear regression model. Missing values for the categorical variable, Rurality, were imputed using logistic regression. Cases with more than 50% of values missing were not imputed, resulting in 828 complete cases in each of the ten imputed datasets. The resulting imputed datasets were used

for moderated regression analyses, and regression results based on results from the imputed datasets were calculated.

Trauma Relationships and Exploratory Data Analysis

Exploratory data analyses, including descriptive statistics and bivariate correlations, were conducted on all available cases in the original dataset. The mean DASS score for respondents raised in non-rural environments was 63.07, compared to the mean DASS score of 63.28 for respondents raised in rural environments. A one-way ANOVA found this difference to be non-significant at the 0.05 level ($F(1, 647) = 0.02, p = 0.90$). The mean PCL-C score for respondents raised in non-rural environments was 29.34, compared to the mean PCL-C score of 30.22 for respondents raised in rural environments. A one-way ANOVA found this difference to be non-significant at the 0.05 level ($F(1, 705) = 0.80, p = 0.37$). The mean PMS score for respondents raised in rural environments was 97.05, compared to the mean of 97.57 for respondents raised in non-rural environments. A one-way ANOVA found this difference to be non-significant at the 0.05 level ($F(1, 628) = 0.26, p = 0.67$). The mean Trauma score for respondents raised in rural environments was 1.8, compared to the mean of 1.6 for respondents raised in non-rural environments. A one-way ANOVA found this difference to be non-significant at the 0.05 level ($F(1, 654) = 0.86, p = 0.35$). These results suggest that there were no significant differences in DASS, PCL-C, PMS, or Trauma scores between individuals raised in non-rural environments versus individuals raised in rural environments. Mean DASS, PCL-C, PMS, and Trauma scores by rurality can be found in Table 1.

Descriptive statistics for DASS score, PCL-C score, Trauma score, and PMS score are shown in Table 2. The Pearson bivariate correlation matrix in Table 3 showed that DASS score was positively correlated with PCL-C score ($r = 0.747, p < 0.01$), Trauma score ($r = 0.3, p <$

0.01), and PMS score ($r = 0.206, p < 0.01$). Additionally, PCL-C score was positively correlated with Trauma score ($r = 0.37, p < 0.01$) and PMS score ($r = 0.209, p < 0.01$).

Moderated Regression Analysis with DASS as Dependent Variable

Moderated regression analyses (Baron & Kenny, 1986; Little, Card, Bovaird, Preacher, & Crandall, 2007) were conducted to examine whether PMS score moderated the relationship between DASS score and Trauma score. Additionally, a moderated moderation model was constructed to test whether the moderation between PMS score and Trauma score depended on Rurality. All analyses were performed on the imputed dataset.

Table 4 shows the results of a simple linear regression of DASS score on Trauma score. The results suggest that individuals who reported more negative experiences on the Trauma Questionnaire tended to report higher DASS scores; a 1 unit increase in trauma score leads to a predicted 2.56 unit increase in DASS score ($t(827) = 65.428, p < 0.05$).

Moderated regression models were constructed to examine the potential moderated effects of PMS score on the relationship between DASS score and Trauma score. A moderated moderation model with response DASS score, predictors Trauma score, PMS score, a Rurality indicator (Rurality = { 1 if non-rural, 0 rural}), all two-way interactions between the predictors, the three-way interaction PMS score x Trauma score x Rurality. The results of the three-way interaction were non-significant ($t(819) = -1.015, p = 0.310$), suggesting that any moderation effect of PMS score on Trauma score did not differ by Rurality. Hence, the first model was used to examine the moderation of PMS score on Trauma score. The two-way interaction PMS score x Trauma score was also non-significant ($t(825) = -1.45, p = 0.147$), suggesting that the relationship between DASS score and Trauma score did not vary significantly at different values

of PMS score. Essentially there was a non-significant moderation effect. This output is displayed in Table 5.

Moderated Regression Analysis PCL-C as Dependent Variable

Moderated regression analyses were conducted to examine whether PMS score moderated the relationship between PCL-C score and Trauma score. Additionally, a moderated moderation model was constructed to test whether the moderation between PMS score and Trauma score depended on Rurality. All analyses were performed on the imputed dataset.

Table 6 shows the results of a simple linear regression of PCL-C score on Trauma score. The results suggest that individuals who reported more negative experiences on the Trauma Questionnaire tended to report higher PTSD scores; a 1 unit increase in trauma score leads to a predicted 2.026 unit increase in DASS score ($t(827) = 10.671, p < 0.05$).

Moderated regression models were constructed to examine the moderation of PMS score on the relationship between PCL-C score and Trauma score. The three-way interaction in the moderated moderation model (Model 2) showed that the coefficient for Trauma score x PMS score x Rurality was non-significant ($t(819) = 0.318, p = 0.751$), suggesting that any moderation effect of PMS score on Trauma score did not differ by Rurality. Hence, a moderation model with Rurality as a control variable was used to examine the moderation of PMS score on Trauma score (Model 1). The two-way interaction PMS score x Trauma score was not significant at the suggesting there was no moderation by total PMS score ($t(822) = -0.029, p = 0.06$). Results are displayed in Table 7.

CHAPTER 5: DISCUSSION

Review of Purpose

The purpose of the present study was to investigate the extent to which Psychological Mindedness (PM) moderates the relationship between history of traumatic events and psychological symptoms. Derived from the theories and research surrounding mentalization, two hypotheses were tested. The first was that PM would moderate the relationship between a history of traumatic events and overall psychological functioning (as measured by the Depression, Anxiety, Stress Scales [DASS]). The second hypothesis was that PM would moderate the relationship between a history of traumatic events and overall symptoms of Post-Traumatic Stress Disorder (PTSD; as measured by the PTSD Checklist – Civilian Version [PCL-C]). Analyses showed that neither regression model was significant, reflecting no significant moderation by PM. Likewise, there appeared to be no significant differences between participants raised in rural vs. non-rural areas on outcome scores or moderation models.

Rural and Non-Rural Differences

One aim of this study was to examine any differences between rural versus non-rural participants on outcome variables as well as moderation models. Results indicated that there were no significant differences on any of the outcome variables, reflecting no differences in psychological symptomatology or in prediction of symptoms. These findings appear contrary to other research examining rurality and psychological outcomes (Costello, Erkanli, Fairbank, & Angold, 2002; Hoyt, Conger, Valde, & Weihs, 1997). The current research appears to show there may be no significant differences in instances of potentially traumatic events, psychological functioning, flexibility of mentalization, or trauma symptoms based on geographic region of origin (rural vs. non-rural). Future research should assess for any differences using assessments

measuring rurality as a continuous multi-dimensional construct (Murray et al., 2004; Waldorf, 2006). The implications for such research could have major impacts on mental health services and policy.

Correlational Findings

Psychological Mindedness and Psychological Symptomatology. Pearson bivariate correlations indicated that higher scores of PM had an inverse relationship to overall psychological functioning, as measured by the DASS, and symptoms of PTSD, as measured by the PCL-C. These findings support past research connecting PM to psychological symptomatology (Krystal, 1998; Krystal & Raskin, 1970; Nykliček, Poot, & van Opstal, 2010; Taylor & Taylor, 1997). Likewise, these findings may show support for theory linking mentalization and psychological symptomatology (Bateman & Fonagy, 2012b; Luyten, Fonagy, Lowyck, & Vermote, 2012).

Trauma and Psychological Symptomatology. Additional correlational data showed that a reported history of traumatic events had a positive relationship to overall psychological functioning, as measured by the DASS, and symptoms of PTSD, as measured by the PCL-C. Past research has linked a history of trauma to psychological symptoms (Hodges et al., 2013; Roesler & McKenzie, 1994) and the current research can add to these findings.

Regression Models

Psychological Mindedness as Moderator. Although both moderation models were found to be non-significant, it is important to note that regression models did show a predictable relationship between PM and psychological symptoms. These results appear consistent with past research on PM and psychological symptoms (Beitel et al., 2005; McCallum et al., 2003). Additionally, these findings may give empirical evidence to a possible predictive relationship

between a history of trauma and mentalization, which have not been researched in past studies. Even with all of the relationships occurring, PM was still found to be a non-significant moderator between history of trauma and psychological symptoms. One possible explanation for these findings may be found in the procedures of measuring PM.

Some researchers claim that early definitions of PM appear to be derived from a predominantly psychoanalytic framework, leading to an inability for other theoretical orientations to study and apply the concept (Grant, 2001). Grant (2001) noted the difficulties in measuring PM, attempting to redefine the concept to incorporate a metacognitive view of PM that measures one's abilities as opposed to the classic definition which aims to measure one's interest in being psychologically minded. Most importantly, the ramifications of such a shift would change the ways in which PM is measured, dismissing many of the current assessments of PM. For instance, Grant (2001) points out that the Psychological Mindedness Scale (PMS) developed from psychoanalytic literature and was aimed at measurement of preparedness to take part in psychoanalytic therapy as opposed to a measurement of a metacognitive process, and should not be regarded as a clear measurement of metacognitive ability. It should also be noted that the current researcher believes that a shift toward PM being viewed as a metacognitive process comes closer to the nature of mentalization, which was the original intention in measuring PM as a moderating factor. Measurement from this perspective may lead to a more valid picture of mentalization as a moderator of the relationship between trauma and psychological symptoms.

Another factor that explains the current findings is the choice to measure the overall score of the PMS as opposed to separate dimension of psychological mindedness. In the early (Hall, 1992) as well as more recent (Grant, 2001) conceptualizations of PM, there is delineation

between the differing psychological abilities that make up the concept. Grant (2001) discusses the importance of seeing PM abilities based upon the combination of affective and intellectual, or cognitive, abilities. Conte and colleagues (1996) showed that the PMS could be evaluated via subscales that reflect the complexities of the concept. These subscales are (1) Willingness to try and understand oneself and others, (2) Openness to new ideas and capacity for change, (3) Access to feelings, (4) Belief in the benefits of discussing one's problems, and (5) Interest in meaning and motivation of one's own and others' behavior. It is clear to see at face value that some of the subscales appear comparable to domains of mentalization (see Chapter 2). Likewise, some of the indicated subscales may not reflect levels of mentalization at all, and thus may be a reasonable explanation for the current findings.

One final possible problem with the assessment of PM might lie in its role in relation to psychological symptomatology. Although there is little research examining PM as a moderator of psychological symptoms, one study found that PM played a mediating role. In a study by Cecero, Beital, and Prout (2008) examining the possible moderating role of PM on the relationship between early maladaptive schemas and college adjustment, PM did not significantly moderate but rather mediated the relationship. Findings such as these as well as the ones of the current study might indicate the need for more research examining PM as a mediating role in the onset of psychological symptomatology as opposed to investigating it as a moderator.

Trauma and Psychological Symptoms. Analyses in the current research appear to reveal a predictable relationship between those with a history of trauma and global psychological functioning as well as a Post-Traumatic Stress Disorder (PTSD) symptoms. These findings are in line with past research linking trauma to psychological symptomatology (Afifi, Enns, et al., 2008; Kessler et al., 2010; Zlotnick, et al., 2008). The current research can add to the dearth of

evidence linking traumatic events and the presence of psychological symptoms, and specifically will add more evidence for a college student population.

Other Limitations

This study utilized a convenience sample of undergraduate students whose ages ranged from 18 to 22. Therefore, findings may not generalize to the general population or to a population with lower levels of education. Additionally, the findings concerning psychological symptoms in people with a history of trauma may not generalize to the overall population as the sample consisted of college students who may come from higher socioeconomic backgrounds than their non-college counterparts (Vrana & Lauterbach, 1994). As such, the levels of coping and psychological functioning may vary from non-college attending populations. Moreover, it is important to note that this study used a cross-sectional design. Although cross-sectional designs may be useful for descriptive studies, they cannot be used to draw conclusions related to temporal relationships.

Clinical Implications

Although there was no moderating relationship between PM and psychological symptoms, the current study's findings still reflect a predictable relationship between the constructs. These findings may support the use of therapeutic techniques aimed at increasing mentalization, although more research should be done to discernibly explain any possible directions of causality.

Though the notion of mentalization originated primarily on psychoanalytic foundations, therapeutic implications seem to cut across theoretical modalities. Originally, the mentalization based approach to therapy was designed for problems related to Borderline Personality Disorder (BPD). The Mentalization-Based Treatment for Borderline Personality Disorder (MBT-BPD;

Bateman & Fonagy, 2004; 2006) has been utilized in practice and positively evaluated in random controlled trials (Bateman & Fonagy, 1999; 2001; 2008). Some propose the framework of mentalization and its clinical application as a relative base of treatment for such problems as depression, eating disorders, and Antisocial Personality Disorder, among many others (Luyten et al., 2011; Skårderud & Fonagy, 2011).

Other forms of therapy have techniques that reflect mentalization-based strategies. Mindfulness based approaches (Hayes, Follette, & Linehan, 2004; Kabat-Zinn, 1994) overlap with mentalization-based techniques such as directing attention toward inward experience and integration of the affective and cognitive aspects of mental states (Choi-Kain & Gunderson, 2008). The concept of making automatic mental states more explicit is also a core feature of Cognitive Behavior Therapy (CBT) in its effort to discover and change “automatic thoughts” (Beck, 2011).

Therapeutic interventions using mentalization based strategies have also been created to target those in rural and underserved populations. Interventions developed so far have been directed at-risk mothers of infants and toddlers (Suchman et al., 2011), adopted children and their parents (Muller, Garets, & Siecker, 2012), hard-to-reach youth (Bevington & Fuggle, 2012), school-based programs (Twemlow, Fonagy, & Sacco, 2012), and parents with Borderline Personality Disorder and their children (Nijssens, Luyten, & Bales, 2012). Most notably, Twemlow and colleagues (2011) applied a mentalization-based program in a Jamaican school for 7th to 9th grades. The program was implemented for approximately three years and showed decreases in school violence and an overall change to a positive school environment as reported by both teachers and students. Programs such as these may show promise in rural and underserved communities. Based upon relatively low cost treatments, these programs may be

able to reach those who are most susceptible to traumatic histories (Ijzendoorn & Bakermans-Kranenburg, 1996).

Suggestions for Future Research

In summary, the current research did not support the notion that mentalization, as defined by PM, plays a moderating role in the relationship between negative life events and psychological distress. Therefore, further research is needed to assess the significance that this concept might play in these relationships. Future research should direct analyses on the PMS subscales as opposed to the total score. Doing so may give a more clear picture as to which, if any, dimensions of PM may contribute to a relationship among the constructs assessed in the current study. Additionally, this could provide more evidence related to which dimension of mentalization may moderate the onset of psychological symptoms after facing a traumatic event. Another avenue of future study includes using more comprehensive assessments of mentalization as a cognitive process as opposed to the classical view of PM. Although theory of the PM construct appears to be a valid assessment of mentalizing abilities (Luyten, et al., 2012), assessing PM as a metacognitive construct (Grant, 2001) might reflect a more valid picture of this mental process. One final avenue for assessment of mentalization would be to use a variation of the Adult Attachment Interview measuring all dimensions of one's capacity to mentalize (Fonagy, Target, Steele, & Steele, 1998). This assessment is one of the most accurate methods of measuring mentalization (Bouchard et al., 2008). Future research should also attempt to assess reported trauma and psychological functioning of a broader demographic than the current study. Assessing trauma temporally closer to the reported event may generate results that provide a more robust examination of the relationship of trauma and psychological functioning.

REFERENCES

- Adkins, J. W., Weathers, F. W., McDevitt-Murphy, M., & Daniels, J. B. (2008). Psychometric properties of seven self-report measures of posttraumatic stress disorder in college students with mixed civilian trauma exposure. *Journal of Anxiety Disorders, 22*, 1393–1402. doi:10.1016/j.janxdis.2008.02.002
- Afifi, T. O., Enns, M. W., Cox, B. J., Asmundson, G. J., Stein, M. B., & Sareen, J. (2008). Population attributable fractions of psychiatric disorders and suicide ideation and attempts associated with adverse childhood experiences. *American Journal of Public Health, 98*, 946 - 952. doi: 10.2105/AJPH.2007.120253
- Allen, J. G., Fonagy, P., & Bateman, A. (2008). *Mentalizing in clinical practice*. Washington, DC: American Psychiatric Pub.
- Allen, J., Lemma, A., & Fonagy, P. (2012). Trauma. In A. Bateman & P. Fonagy (Eds.), *Handbook of mentalizing in mental health practice* (419 - 444). Washington, DC: American Psychiatric Pub.
- American Psychiatric Association (Ed.). (2013). *DSM-5: Diagnostic and statistical manual of mental disorders, fifth edition*. Washington, DC: American Psychiatric Association.
- Alvarez, J. R., Farber, B. A., & Schonbar, R. A. (1998). The relationship of psychological-mindedness to adult perceptions of early parental rejection. *Journal of Clinical Psychology, 54*, 1079 - 1084. doi: 10.1002/(SICI)1097-4679(199812)54:83.0.CO;2-N
- Appelbaum, S. (1973). Psychological-mindedness: Word, concept and essence. *International Journal of Psychoanalysis, 54*, 35 - 46.

- Baron, R. M., & Kenny D. A. (1986), Moderator-mediator variables distinction in social psychological research: Conceptual, strategic, and statistical considerations, *Journal of Personality and Social Psychology*, *51*, 1173 – 82.
- Bartels, A., & Zeki, S. (2004). The neural correlates of maternal and romantic love. *NeuroImage*, *21*, 1155-1166. doi: 10.1016/j.neuroimage.2003.11.003
- Bateman, A., & Fonagy, P. (1999). Effectiveness of partial hospitalization in the treatment of Borderline Personality Disorder: A random controlled trial. *American Journal of Psychiatry*, *156*, 1563 - 1569.
- Bateman, A., & Fonagy, P. (2001). Treatment of Borderline Personality Disorder with psychoanalytically oriented partial hospitalization: An 18 month follow-up. *American Journal of Psychiatry*, *158*, 36 - 42.
- Bateman, A., & Fonagy, P. (2004). *Psychotherapy for Borderline Personality Disorder: Mentalization-based treatment*. Oxford, UK: Oxford University Press.
- Bateman, A., & Fonagy, P. (2006). *Mentalization-based treatment for Borderline Personality Disorder: A practical guide*. Oxford, UK: Oxford University Press.
- Bateman, A., & Fonagy, P. (2008). Eight-year follow-up of patients treated for Borderline Personality Disorder: Mentalization-based treatment versus treatment as usual. *American Journal of Psychiatry*, *165*, 631 - 638.
- Bateman, A., & Fonagy, P. (2012a). Antisocial personality disorders. In A. Bateman & P. Fonagy (Eds.), *Handbook of mentalizing in mental health practice* (289 - 308). Washington, DC: American Psychiatric Pub.

- Bateman, A., & Fonagy, P. (2012b). Individual techniques of the basic model In A. Bateman & P. Fonagy (Eds.). *Handbook of mentalizing in mental health practice* (67 - 80). Washington, DC: American Psychiatric Pub.
- Beck, J. S. (2011). *Cognitive behavior therapy: Basics and beyond* (2nd ed.). New York, NY: Guilford Press.
- Beitel, M., & Cecero, J. J. (2003). Predicting psychological mindedness from personality style and attachment security. *Journal of Clinical Psychology, 59*, 163-172. doi: 10.1002/jclp.10125
- Beitel, M., Ferrer, E., & Cecero, J. J. (2005). Psychological mindedness and awareness of self and others. *Journal of Clinical Psychology, 61*, 739 - 750. doi: 10.1002/jclp.20095
- Berthoz, S., Consoli, S., Perez-Diaz, F., & Jouvent, R. (1999). Alexithymia and anxiety: Compounded relationships? A psychometric study. *European Psychiatry, 14*, 372 - 378.
- Bevington, D., & Fuggle, P. (2012). Supporting and enhancing mentalization in community outreach teams working with hard-to-reach youth: The AMBIT approach. In N. Midgley & I. Vrouva (Eds.), *Minding the child: Mentalization-based interventions with children, young people, and their families*. New York, NY: Routledge.
- Bion, W. R. (1962). *Learning from experience*. New York, NY: Basic Books Pub.
- Blair, J. (2007). Empathic dysfunction in psychopathic individuals. In T. F. Farrow & P. W. Woodruff (Eds.), *Empathy in mental illness* (3 - 16). Cambridge: Cambridge University Press.
- Blatt, S. (2008). *Polarities of experiences: Relatedness and self-definition in personality development, psychopathology and the therapeutic process*. Washington, DC: American Psychological Association.

- Bonanno, G. A. (2004). Loss, trauma, and human resilience: Have we underestimated the human capacity to thrive after extremely aversive events? *American Psychologist*, *59*, 20 - 28.
doi: 10.1037/0003-066X.59.1.20
- Bonanno, G. A. (2005). Resilience in the face of potential trauma. *Current Directions in Psychological Science*, *14*, 135 - 138. doi: 10.1111/j.0963-7214.2005.00347.x
- Bouchard, M. A., Target, M., Lecours, S., Fonagy, P., Tremblay, L. M., Schachter, A., & Stein, H. (2008). Mentalization in adult attachment narratives: Reflective functioning, mental states, and affect elaboration compared. *Psychoanalytic Psychology*, *25*, 47.
- Cecero, J. J., Beitel, M., & Prout, T. (2008). Exploring the relationships among early maladaptive schemas, psychological mindedness and self-reported college adjustment. *Psychology and Psychotherapy: Theory, Research and Practice*, *81*, 105-118.
- Choi-Kain, L. W., & Gunderson, J. G. (2008). Mentalization: Ontogeny, assessment, and application in the treatment of Borderline Personality Disorder. *American Journal of Psychiatry*, *165*, 1127 - 1135. doi: 10.1176/appi.ajp.2008.07081360
- Chu, D. A., Williams, L. M., Harris, A. W., Bryant, R. A., & Gatt, J. M. (2013). Early life trauma predicts self-reported levels of depressive and anxiety symptoms in nonclinical community adults: Relative contributions of early life stressor types and adult trauma exposure. *Journal of psychiatric research*, *47*, 23-32. doi:
10.1016/j.jpsychires.2012.08.006
- Chung, Y., Kang, D., Shin, N., Yoo, S., & Kwon, J. (2008). Deficit of theory of mind in individuals at ultra-high-risk for schizophrenia. *Schizophrenia Research*, *99*, 111 - 118.

- Cicchetti, D., Rogosch, F. A., Maughan, A., Toth, S. L., & Bruce, J. (2003). False belief understanding in maltreated children. *Development and Psychopathology, 15*, 1067-1095. doi: 10.1017/S0954579403000440
- Conte, H., Plutchik, R., Jung, B., Picard, S., Karusu, T., & Lotterman, A. (1990). Psychological mindedness as a predictor of psychotherapy outcome: A preliminary report. *Comprehensive Psychiatry, 31*, 426 - 431. doi: 10.1016/0010-440X(90)90027-P
- Conte, H. R., Ratto, R., & Karasu, T. B. (1996). The Psychological Mindedness Scale: Factor structure and relationship to outcome of psychotherapy. *Journal of Psychotherapy Practice and Research, 5*, 250-259.
- Costello, E. J., Erkanli, A., Fairbank, J. A., & Angold, A. (2002). The prevalence of potentially traumatic events in childhood and adolescence. *Journal of Traumatic Stress, 15*, 99 - 112.
- Cox, B., Swinson, R., Shulman, I., & Bourdeau, D. (1995). Alexithymia in panic disorder and social phobia. *Comprehensive Psychiatry, 36*, 195 - 198.
- Dougherty, L. R., Klein, D. N., & Davila, J. (2004). A growth curve analysis of the course of dysthymic disorder: the effects of chronic stress and moderation by adverse parent-child relationships and family history. *Journal of Consulting Clinical Psychology, 72*, 1012 – 1021.
- Edwards, V. J., Holden, G. W., Felitti, V. J., & Anda, R. F. (2003). Relationship between multiple forms of childhood maltreatment and adult mental health in community respondents: Results from the adverse childhood experiences study. *American Journal of Psychiatry 160*, 1453 – 1460

- Farber, B. A. (1985). The genesis, development, and implications of psychological-mindedness in psychotherapists. *Psychotherapy: Theory, Research, Practice, Training*, 22, 170 - 177. doi: 10.1037/h0085490
- Fichman, M., & Cummings, J. N. (2003). Multiple imputation for missing data: Making the most of what you know. *Organizational Research Methods*, 6, 282-308.
- Fish, M. (2001). Attachment in low-SES rural Appalachian infants: Contextual, infant, and maternal interaction risk and protective factors. *Infant Mental Health Journal*, 22, 641-664.
- Fonagy, P., Bateman, A., & Luyten, P. (2011). Introduction and overview. In A. Bateman & P. Fonagy (Eds.), *Handbook of mentalizing in mental health practice* (3 - 42). Washington, DC: American Psychiatric Publishing.
- Fonagy, P., & Target, M. (1997). Attachment and reflective function: Their role in self-organization. *Development and Psychopathology*, 9, 679 - 700.
- Fonagy, P., Gergely, G., & Target, M. (2007). The parent/infant dyad and the construction of the subjective self. *Journal of Child Psychology and Psychiatry*, 48, 288 - 328. doi: 10.1111/j.1469-7610.2007.01727.x
- Fonagy, P., Steele, M., Steele, H., Leigh, T., Kennedy, R., Matoon, G., & Target, M. (1995). Attachment, the reflective self, and borderline states. In S. Goldberg, R. Muir, & J. Kerr (Eds.), *Attachment theory: Social, developmental, and clinical perspectives* (233 - 278). Hillsdale, NJ: Analytic Press.
- Fonagy, P., Target, M., Steele, H., & Steele, M. (1998). Reflective-functioning manual, version 5.0, for application to adult attachment interviews. *London: University College London*.

- Gergely, G., & Watson, J. (1996). The social biofeedback theory of parental affect-mirroring: The development of emotional self-awareness and self-control in infancy. *International Journal of Psychoanalysis*, *77*, 1181 - 1212.
- Grant, A. M. (2001). Rethinking: psychological mindedness: metacognition, self-reflection, and insight. *Behaviour Change*, *18*, 8.
- Hall, J. (1992). Psychological-mindedness: A conceptual model. *American Journal of Psychotherapy*, *46*, 131 - 140.
- Harris, P. L. (1999). Individual differences in understanding emotion: The role of attachment status and psychological discourse. *Attachment & Human Development*, *1*, 307 - 324. doi: 10.1080/14616739900134171
- Hayes, S. C., Follette, V. M., & Linehan, M. (2004). *Mindfulness and acceptance: Expanding the cognitive-behavioral tradition*. New York, NY: Guilford Press.
- Heim, C., & Nemeroff, C. B. (2001). The role of childhood trauma in the neurobiology of mood and anxiety disorders: Preclinical and clinical studies. *Biological Psychiatry*, *49*, 1023 - 1039.
- Hill, J. (2003). Childhood trauma and depression. *Current Opinion in Psychiatry*, *16*, 3 - 6.
- Hodges, M., Godbout, N., Briere, J., Lanktree, C., Gilbert, A., & Kletzka, N. T. (2013). Cumulative trauma and symptom complexity in children: A path analysis. *Child Abuse & Neglect*, *37*, 891-898. doi: 10.1016/j.chiabu.2013.04.001
- Howe, D. (2011). *Attachment across the lifecourse: A brief introduction*. Basingstoke, Hampshire, UK: Palgrave Macmillan.
- Hoyt, D. R., Conger, R. D., Valde, J. G., & Weihs, K. (1997). Psychological distress and help seeking in rural America. *American Journal of Community Psychology*, *25*, 449 - 470.

- IJzendoorn, M. H., & Bakermans-Kranenburg, M. J. (1996). Attachment representations in mothers, fathers, adolescents, and clinical groups: a meta-analytic search for normative data. *Journal of Consulting and Clinical Psychology, 64*, 8.
- Jenkins, J. M., & Astington, J. W. (1996). Cognitive factors and family structure associated with theory of mind development in young children. *Developmental Psychology, 32*, 70 - 78.
doi: 10.1037/0012-1649.32.1.70
- Kabat-Zinn, J. (1994). *Wherever you go, there you are: Mindfulness meditation in everyday life*. New York, NY: Hyperion.
- Kendler, K. S., Kuhn, J. W., & Prescott, C. A. (2004). Childhood sexual abuse, stressful life events and risk for major depression in women. *Psychological Medicine, 34*, 1475 – 1482.
- Kessler, R. C., McLaughlin, K. A., Green, J. G., Gruber, M. J., Sampson, N. A., Zaslavsky, A. M., ... Williams, D. R. (2010). Childhood adversities and adult psychopathology in the WHO World Mental Health Surveys. *The British Journal of Psychiatry, 197*, 378 - 385.
doi: 10.1192/bjp.bp.110.080499
- Krystal, H. (1998). *Integration and self-healing: Affect–trauma–alexithymia*. Hillsdale, NJ: Analytic Press.
- Krystal, H., & Raskin, H. A. (1970). *Drug dependence: Aspects of ego function*. Detroit, MI: Wayne State University Press.
- Lee, D., & Young, K. (2001). Post-traumatic stress disorder: Diagnostic issues and epidemiology in adult survivors of traumatic events. *International Review of Psychiatry, 13*, 150 - 158.
doi: 10.1080/09540260120074000

- Leslie, A. M. (1987). Pretense and representation: The origins of "theory of mind."
Psychological Review, *94*, 412 - 426. doi: 10.1037/0033-295X.94.4.412
- Lieberman, M. D. (2007). Social cognitive neuroscience: A review of core processes. *Annual Review of Psychology*, *58*, 259 - 289. doi: 10.1146/annurev.psych.58.110405.085654
- Linehan, M. (1993). *Cognitive-behavioral treatment of Borderline Personality Disorder*. New York, NY: Guilford Press.
- Little, R. J. (1988). A test of missing completely at random for multivariate data with missing values. *Journal of the American Statistical Association*, *83*, 1198-1202.
- Little, T. D., Card, N. A., Bovaird, J. A., Preacher, K. J., & Crandall, C. S. (2007). Structural equation modeling of mediation and moderation with contextual factors. In T.D. Little, J.A. Bovaird, & N.A. Card (Eds.), *Modeling contextual effects in longitudinal studies* (207-230). New Jersey: Lawrence Erlbaum Associates.
- Lovibond, S. H., & Lovibond, P. F. (1995a). *Manual for the Depression Anxiety Stress Scales*. (2nd Ed.) Sydney: Psychology Foundation.
- Lovibond, P. F., & Lovibond, S. H. (1995b). The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behaviour Research and Therapy*, *33*, 335 - 343.
- Luyten, P., Fonagy, P., Lowyck, B., & Vermote, R. (2012). Assessment of mentalization. In A. Bateman & P. Fonagy (Eds.), *Handbook of mentalizing in mental health practice* (43 - 65). Washington, DC: American Psychiatric Pub.
- Luyten, P., Fonagy, P., Lemma, A., & Target, M. (2012). Depression. In A. Bateman & P. Fonagy (Eds.), *Handbook of mentalizing in mental health practice* (385 - 418). Washington, DC: American Psychiatric Pub.

- Mayes, L. C. (2000). A developmental perspective on the regulation of arousal states. *Seminars in Perinatology, 24*, 267 - 279.
- McCallum, J., Piper, W., Ogrodniczuk, J., & Joyce, A. (2003). Relationships among psychological mindedness, alexithymia and outcome in four forms of short-term psychotherapy. *Psychology and Psychotherapy: Theory, Research and Practice, 76*, 133 - 144. doi: 10.1348/147608303765951177
- Meins, E., Fernyhough, C., Russell, J., & Clark-Carter, D. (1998). Security of attachment as a predictor of symbolic and mentalising abilities: A longitudinal study. *Social Development, 7*, 1 - 24. doi: 10.1111/1467-9507.00047
- Meins, E., Fernyhough, C., Wainwright, R., Das Gupta, M., Fradley, E., & Tuckey, M. (2002). Maternal mind-mindedness and attachment security as predictors of theory of mind understanding. *Child Development, 73*, 1715 - 1726. doi: 10.1111/1467-8624.00501
- Metropolis, N., Rosenbluth, A. W., Rosenbluth, M. N., Teller, A. H., & Teller, E. (1953). Equation of state calculations by fast computing machines. *The Journal of Chemical Physics, 21*, 1087-1092.
- Muller, N., Gerits, L., & Siecker, I. (2012). Mentalization-based therapies for adopted children and their families. In N. Midgley & I. Vrouva (Eds.), *Minding the child: Mentalization-based interventions with children, young people, and their families*. New York, NY: Routledge.
- Murray, G., Judd, F., Jackson, H., Fraser, C., Komiti, A., Hodgins, G., ... & Robins, G. (2004). Rurality and mental health: the role of accessibility. *Australian and New Zealand Journal of Psychiatry, 38*, 629-634.

- Nijssens, L., Luyten, P., & Bales, D. (2012). Mentalization-Based Treatment for Parents (MBT-P) with Borderline Personality Disorder and their infants. In N. Midgley & I. Vrouva (Eds.), *Minding the child: Mentalization-based interventions with children, young people, and their families*. New York, NY: Routledge.
- Nyklíček, I., Poot, J., & Van Opstal, J. (2010). Psychological mindedness in relation to personality and coping in a sample of young adult psychiatric patients. *Journal of Clinical Psychology, 66*, 34 - 45. doi: 10.1002/jclp.20627
- Ontai, L. L., & Thompson, R. A. (2002). Patterns of attachment and maternal discourse effects on children's emotion understanding from 3 to 5 years of age. *Social Development, 11*, 433 - 450. doi: 10.1111/1467-9507.00209
- Ostler, T., Bahar, O. S., & Jessee, A. (2010). Mentalization in children exposed to parental methamphetamine abuse: Relations to children's mental health and behavioral outcomes. *Attachment & Human Development, 12*, 193 - 207.
- Ozer, E. J., Best, S. R., Lipsey, T. L., & Weiss, D. S. (2008). Predictors of posttraumatic stress disorder and symptoms in adults: A meta-analysis. *Psychological Trauma: Theory, Research, Practice, and Policy, 8*, 3 - 36. doi: 10.1037/1942-9681.S.1.3
- Ozsahin, A., Uzun, O., Cansever, A., & Gulcat, Z. (2003). The effect of alexithymic features on response to antidepressant medication in patients with major depression. *Depression and Anxiety, 18*, 62 - 66. doi: 10.1002/da.10117
- Paris, J. (2000). Predispositions, personality traits, and Posttraumatic Stress Disorder. *Harvard Review of Psychiatry, 8*, 175 - 183. doi: 10.1080/hrp_8.4.175
- Pears, K., & Fisher, P. A. (2005). Developmental, cognitive, and neuropsychological functioning in preschool-aged foster children: Associations with prior maltreatment and placement

- history. *Journal of Developmental & Behavioral Pediatrics*, 26, 112-122. doi:
<http://dx.doi.org/10.1111%2Fj.1467-8624.2010.01491.x>
- Perner, J., Ruffman, T., & Leekam, S. R. (1994). Theory of mind is contagious: You catch it from your sibs. *Child Development*, 65, 1228. doi: 10.1111/j.1467-8624.1994.tb00814.x
- Petterson, S., Williams, I. C., Hauenstein, E. J., Rovnyak, V., & Merwin, E. (2009). Race and ethnicity and rural mental health treatment. *Journal of Health Care for the Poor and Underserved*, 20, 662.
- Premack, D., & Woodruff, G. (1978). Does the chimpanzee have a theory of mind? *The Behavioral and Brain Sciences*, 4, 515 - 526. doi: 10.1017/S0140525X00076512
- Raikes, A. H., & Thompson, R. A. (2006). Family emotional climate, attachment security and young children's emotion knowledge in a high risk sample. *British Journal of Developmental Psychology*, 24, 89 - 104. doi: 10.1348/026151005X70427
- Ringel, S. (2012). Attachment theory, infant research, and neurobiology. In S. Ringel & J. R. Brandell (Eds.), *Trauma: Contemporary directions in theory, practice, and research* (77 - 96). Thousand Oaks, CA: SAGE Publications.
- Roesler, T. A., & McKenzie, N. (1994). Effects of childhood trauma on psychological functioning in adults sexually abused as children. *The Journal of Nervous and Mental Disease*, 182, 145-150.
- Rosnay, M. D., & Harris, P. L. (2002). Individual differences in children's understanding of emotion: The roles of attachment and language. *Attachment & Human Development*, 4, 39-54. doi: 10.1080/14616730210123139
- Rothschild, B. (2011). *Trauma essentials: The go-to guide*. New York, NY: W.W. Norton.

- Rufer, M., Ziegler, A., Alsleben, H., Fricke, S., Ortmann, J., Bruckner, E., ... Peter, H. (2006). A prospective long-term follow-up study of alexithymia in obsessive-compulsive disorder. *Comprehensive Psychiatry*, *47*, 394-398. doi: 10.1016/j.comppsy.2005.12.004
- Ruggiero, K. J., Del Ben, K., Scotti, J. R., & Rabalais, A. E. (2003). Psychometric properties of the PTSD Checklist – Civilian Version. *Journal of Traumatic Stress*, *16*, 495 – 502. doi:10.1023/A:1025714729117
- Satpute, A. B., & Lieberman, M. D. (2006). Integrating automatic and controlled processes into neurocognitive models of social cognition. *Brain Research*, *1079*, 86-97. doi: 10.1016/j.brainres.2006.01.005
- Shill, M., & Lumley, M. (2002). The Psychological Mindedness Scale: Factor structure, convergent validity and gender in a non-psychiatric sample. *Psychology and Psychotherapy: Theory, Research and Practice*, *75*, 131-150. doi: 10.1348/147608302169607
- Skårderud, F., & Fonagy, P. (2012). Eating disorders. In A. Bateman & P. Fonagy (Eds.), *Handbook of mentalizing in mental health practice* (pp. 347 - 384). Washington, DC: American Psychiatric Pub.
- Slade, A. (2005). Parental reflective functioning: An introduction. *Attachment & Human Development*, *7*, 269 - 281. doi: 10.1080/14616730500245906
- Spek, V., Nyklek, I., Cuijpers, P., & Pop, V. (2008). Alexithymia and cognitive behaviour therapy outcome for subthreshold depression. *Acta Psychiatrica Scandinavica*, *118*, 164 - 167. doi: 10.1111/j.1600-0447.2008.01199.x
- Staab, J., Fullerton, C., & Ursano, R. (1999). A critical look at PTSD: Constructs, concepts, epidemiology, and implications. In R. Gist & B. Lubin (Eds.), *Response to disaster:*

- Psychosocial, community, and ecological approaches* (101 - 128). Philadelphia, PA: Brunner/Mazel.
- Steele, H., Steele, M., Croft, C., & Fonagy, P. (1999). Infant-mother attachment at one year predicts children's understanding of mixed emotions at six years. *Social Development, 8*, 161 - 178. doi: 10.1111/1467-9507.00089
- Stein, H. (2006). Does mentalizing promote resilience? In J. G. Allen & P. Fonagy (Eds.), *Handbook of mentalization-based treatment* (307 - 326). Chichester, UK: Wiley.
- Stichter, J. P., Herzog, M. J., Visovsky, K., Schmidt, C., Randolph, J., Schultz, T., & Gage, N. (2010). Social competence intervention for youth with Asperger syndrome and high-functioning autism: An initial investigation. *Journal of Autism and Developmental Disorders, 40*, 1067 - 1079. doi: 10.1007/s10803-010-0959-1
- Suchman, N., Pajulo, M., Kalland, M., DeCoste, C., & Mayes, L. (2012). At-risk mothers of infants and toddlers. In A. Bateman & P. Fonagy (Eds.), *Handbook of mentalizing in mental health practice* (pp. 309 - 346). Washington, DC: American Psychiatric Pub.
- Symons, D. (2004). Mental state discourse, theory of mind, and the internalization of self-other understanding. *Developmental Review, 24*, 159 - 188. doi: 10.1016/j.dr.2004.03.001
- Taylor, G. J., & Taylor, H. L. (1997). Alexithymia. In M. McCallum & W. E. Piper (Eds.), *Psychological mindedness: A contemporary understanding* (77 - 106). Mahwah, NJ: Lawrence Erlbaum.
- Taylor, G. J., Bagby, R. M., & Parker, J. D. (1997). *Disorders of affect regulation: Alexithymia in medical and psychiatric illness*. Cambridge, UK: Cambridge University Press.
- Tedeschi, R. G., & Calhoun, L. G. (1996). The Posttraumatic Growth Inventory: Measuring the positive legacy of trauma. *Journal of Traumatic Stress, 9*, 455-471.

- Thompson, R. A. (2000). The legacy of early attachments. *Child Development, 71*, 145 - 152.
doi: 10.1111/1467-8624.00128
- Trevarthen, C., & Aitken, K. J. (2001). Infant intersubjectivity: Research, theory, and clinical applications. *Journal of Child Psychology and Psychiatry, 42*, 3 - 48. doi: 10.1111/1469-7610.00701
- Tronick, E. Z. (1989). Emotions and emotional communication in infants. *American Psychologist, 44*, 112 - 119. doi: 10.1037/0003-066X.44.2.112
- Twemlow, S., Fonagy, P., & Sacco, F. (2012). A developmental approach to mentalizing communities through the Peaceful Schools experiment. In N. Midgley & I. Vrouva (Eds.), *Minding the child: Mentalization-based interventions with children, young people, and their families*. New York, NY: Routledge.
- Twemlow, S., Fonagy, P., Sacco, F., Vernberg, E., & Malcolm, J. (2011). Reducing violence and prejudice in a Jamaican all age school using attachment and mentalization theory. *Psychoanalytic Psychology, 28*, 497 - 511. doi: 10.1037/a0023610
- Uekermann, J., Channon, S., Lehmkämer, C., Abdel-Hamid, M., Vollmoeller, W., & Daum, I. (2008). Executive function, mentalizing and humor in major depression. *Journal of the International Neuropsychological Society, 14*, 55 - 62. doi: 10.10170S1355617708080016
- Verhaeghe, P., & Vanheule, S. (2005). Actual neurosis and PTSD: The impact of the other. *Psychoanalytic Psychology, 22*, 493 - 507. doi: 10.1037/0736-9735.22.4.493
- Vrana, S., & Lauterbach, D. (1994). Prevalence of traumatic events and post-traumatic psychological symptoms in a nonclinical sample of college students. *Journal of Traumatic Stress, 7*(2), 289-302.

Waldorf, B. S. (2006). A continuous multi-dimensional measure of rurality: Moving beyond threshold measures. In *annual meeting of the American Agricultural Economics Association, Long Island, CA*.

Weathers, F.W., Litz, B. T., Huska, J. A., & Keane, T. M. (1994). *PTSD Checklist—Civilian Version*. Boston: National Center for PTSD, Behavioral Science Division.

Zlotnick, C., Johnson, J., Kohn, R., Vicente, B., Rioseco, P., & Saldivia, S. (2008). Childhood trauma, trauma in adulthood, and psychiatric diagnoses: Results from a community sample. *Comprehensive Psychiatry*, *49*, 163 - 169. doi: 10.1016/j.comppsy.2007.08.007

Table 1

Mean, Standard Deviation, Minimum, and Maximum DASS, PCL-C, PMS, and Trauma Scores by Rurality

Variables (N)	Mean (SD)	Min-Max Scores
Rural		
DASS (n = 250)	63.28 (20.02)	42.00 – 129.00
PCL-C (n = 273)	30.22 (13.55)	17.00 – 85.00
PMS (n = 242)	97.05 (12.91)	51.00 – 126.00
Trauma (n = 254)	1.78 (2.33)	0.00 – 13.00
Non-Rural		
DASS (n = 399)	63.08 (20.56)	42.00 – 134.00
PCL-C (n = 434)	29.34 (12.27)	17.00 – 85.00
PMS (n = 388)	97.57 (12.33)	58.00 – 132.00
Trauma (n = 402)	1.61 (2.37)	0.00 – 21.00

Note: Depression, Anxiety, Stress Scales (DASS), Post-Traumatic Stress Disorder Checklist – Civilian Version (PCL-C), Psychological Mindedness Scale (PMS), Trauma Questionnaire (Trauma)

Table 2

Minimum, Maximum, Mean, and Standard Deviations of DASS Scale, PCL-C Scale, Trauma Scale, and PMS Scale

	N	Minimum	Maximum	Mean	Std. Deviation
DASS	721	42.00	168.00	63.90	21.25
PCL-C	773	17.00	85.00	29.95	13.06
Trauma	683	0.00	21.00	1.66	2.34
PMS	633	51.00	132.00	97.36	12.52
Valid N (listwise)	501				

Note: Depression, Anxiety, Stress Scales (DASS), Post-Traumatic Stress Disorder Checklist – Civilian Version (PCL-C), Trauma Questionnaire (Trauma), Psychological Mindedness Scale (PMS)

Table 3

Pearson Bivariate Correlation Matrix for DASS Scale, PCL-C Scale, Trauma Scale, and PMS Scale

	DASS	PCL-C	Trauma	PMS
DASS	---			
PCL-C	0.75**	---		
Trauma	0.30**	0.37**	---	
PMS	0.21**	0.21**	0.01	---

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

Note: Depression, Anxiety, Stress Scales (DASS), Post-Traumatic Stress Disorder Checklist – Civilian Version (PCL-C), Trauma Questionnaire (Trauma), Psychological Mindedness Scale (PMS)

Table 4

Simple Linear Regression of DASS Scores on Trauma Scores

Variable	DASS						
	<i>B</i>	<i>SE B</i>	β	t	Sig.	R^2	<i>F</i>
Trauma	2.56	0.34	0.26	7.56	0.00	0.07	60.03**

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

Note: Trauma Questionnaire (Trauma)

Table 5

Summary of Regression Analysis for Variables Predicting DASS Scores

Variable	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	R^2	<i>F</i>
Step One							0.11	19.31**
Trauma	6.38	2.65	0.65*					
PMS	0.44	0.08	0.23**					
Trauma x PMS	-0.04	0.03	-0.40					
Step Two							0.12	1.31
Trauma				-0.94	13.13	-0.09		
PMS				0.68	0.24	0.04*		
Rural				-14.32	16.18	-0.32		
Trauma x PMS				-0.48	0.04	-0.05		
Rural x Trauma				4.38	5.43	0.68		
Rural x PMS				-0.17	0.16	-0.38		
Trauma x PMS x Rural				0.03	0.06	0.30		

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

Note: Trauma Questionnaire (Trauma), Psychological Mindedness Scale (PMS), Rural versus Non-Rural (Rural)

Table 6

Simple Linear Regression of PCL-C Scores on Trauma Scores

Variable	PCL-C						
	<i>B</i>	<i>SE B</i>	β	t	Sig.	<i>R</i> ²	<i>F</i>
Trauma	2.03	0.19	0.26	10.67	0.00	0.13	118.16**

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

Note: Trauma Questionnaire (Trauma)

Table 7

Summary of Regression Analysis for Variables Predicting PCL-C Scores

Variable	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>R</i> ²	<i>F</i>
Step One							0.17	19.92**
Trauma	4.80	1.50	0.82**					
PMS	0.27	0.46	0.24**					
Trauma x PMS	-0.03	0.01	-0.47					
Step Two							0.18	2.18*
Trauma				1.46	4.66	0.25		
PMS				0.36	0.13	0.33**		
Rural				-5.61	9.13	-0.21		
Trauma x PMS				-0.26	0.02	-0.46		
Rural x Trauma				1.81	3.06	0.48		
Rural x PMS				-0.70	0.09	-0.28		
Trauma x PMS x Rural				0.01	0.03	0.15		

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

Note: Trauma Questionnaire (Trauma), Psychological Mindedness Scale (PMS), Rural versus Non-Rural (Rural)