A META-ANALYTIC REVIEW OF THE RELATIONSHIP BETWEEN INTERPERSONAL TRAUMA AND COMMITTED ROMANTIC RELATIONSHIPS

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ABSTRACT

The effects of trauma can be wide reaching and long lasting. In effort to create more comprehensive theories for the effects of trauma, there is a focus on the association between trauma and intimate relationships. For example, posttraumatic stress disorder (PTSD; APA 2013) is associated with deficiencies in romantic relationship satisfaction through an increase in maladaptive communication patterns, relationship instability and intimate partner violence. Furthermore, relationship satisfaction can predict decreases in an individual reliving the trauma, emotional numbness and irritability.

The focus in this study is on interpersonal trauma. This encompasses trauma enacted from one (or more) individual(s) onto another (e.g., sexual assault, abuse, physical assault, and war), throughout the course of the life span, that occur outside of the romantic dyad. It is hypothesized that traumas caused by another human or humans will have a greater impact on other interpersonal functioning, such as romantic relationships compared to those caused by forces of nature.

A literature search of all relevant articles and dissertations was completed. After systematic reviews, coding each abstract, then article, seventy-seven articles were included in the final analysis. Comprehensive Meta-Analysis was the program used to

analyze the results of this meta-analysis. A statistically significant result was found, with more severe trauma symptoms have a greater negative impact on romantic relationship functioning. Those with military backgrounds had a greater negative outcome when compared to those with civilian backgrounds. Which relationship measure was used and which trauma measure was used also yielded significant results.

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Chapter 1. Introduction and literature review

The effects of trauma can be wide-reaching and long-lasting. For instance, trauma experiences have been linked to an increase in self-harm, substance abuse, anxiety disorders depression, eating disorders and suicidal ideation and behavior (Barry, Whiteman, & Macdermid Wadsworth, 2014; Breland et al., 2018; Calhoun et al., 2012; Flood, McDevitt-Murphy, Weathers, Eakin, & Benson, 2009; Read, Bachrach, Wright, & Colder, 2016; Schonfeld, Braue, Stire, Gum, Cross, & Brown, 2015; Vrana & Lauterbach, 1994). Additionally, in an effort to create more comprehensive theories for the effects of trauma, there is a focus on the association between trauma and intimate relationships. For example, posttraumatic stress disorder (PTSD; APA 2013) is associated with deficiencies in romantic relationship satisfaction through an increase in maladaptive communication patterns, relationship instability and intimate partner violence (Allen, Rhoades, Stanley, & Markman, 2010; Lambert, Engh, Hasbun, & Holzer, 2012; Monson, Taft, & Fredman, 2009; Taft, Watkins, Stafford, Street, & Monson, 2011).

Defining Trauma

Since the Posttraumatic Stress Disorder made its first appearance in the DSM-III in 1980, trauma and its potential effects have become a large focus in the field of psychology (APA, 1980; McNally, 2003). Originally PTSD had three different clusters that the symptoms fell into re-experiencing, numbing, and miscellaneous symptoms.

However, while these clusters are still present in the DSM-V, it is now understood that there is other symptoms associated with the trauma that are not captured in these initial three clusters (APA, 2013; Price, Higga-McMillian, Kim, & Frueh, 2013). The DSM-V (APA, 2013) diagnostic criteria for Posttraumatic Stress Disorder criteria A states that the individual has had:

> "exposure to actual or threatened death, serious injury, or sexual violence in one or more of the following ways: 1. Directly experiencing the traumatic events(s). 2. Witnessing, in person, the event(s) as it occurred to others. 3. Learning that the traumatic event(s) occurred to a close family member or close friend. In cases of actual or threatened death of a family member or friend, the event(s) must have been violent or accidental. 4. Experiencing repeated or extreme exposure to aversive details of the traumatic event(s)."

In contrast, Meriam-Webster (2018) defines trauma as, "a) an injury (such as a wound) to living tissue caused by an extrinsic agent; b) a disordered psychic or behavioral state resulting from severe mental or emotional stress or physical injury; c) an emotional upset." The dictionary definition provides a broader lens with which to understand the concept of trauma.

Trauma has been defined in various ways over the years. Some of the most common forms of trauma are car accidents, natural disasters, a terrorist attack, war, or abuse (Blood, 2012). Trauma can also be categorized as interpersonal and non-interpersonal; interpersonal trauma typically refers to emotional, physical, or sexual abuse, and non-interpersonal trauma typically refers to experiences such as car accidents, natural disasters, and war (Freyd, 1992; Blood, 2012; United States Department of Health and Human Services, 2017). There are some notable differences in the way traumatic symptoms manifest based on this distinction. Van der Kolk (2005) illustrates that

interpersonal trauma, especially in childhood, can increase aggression, impulsivity, attentional and dissociative problems, and difficulty navigating interpersonal relationships. Further, due to the varying symptoms, developmental delays, and lack of trust in others, many individuals receive other psychiatric diagnoses which may impact treatment in an adverse way (van der Kolk, 2005).

The Adverse Childhood Experiences Study (ACES; Felitti et al., 1998) examined life events, both interpersonal and non-interpersonal, that occurred in childhood and tracked the impact those events had over the course of the life span. The non-interpersonal traumas such as a parent/caregiver having a substance use problem or mental health diagnosis often increased the chances of an interpersonal trauma such as neglect, or physical/emotional abuse. Individuals who had experienced even one ACE had a greater likelihood of depression, heart disease, and substance use. As the number of ACES increased so did the negative outcomes later in life, such as less education and job opportunities, an increase in unintended pregnancy and increase the risk for HIV or STIs (CDC, 2019). Felitti et al. (1998) also found that females and racial/ethnic minority groups were at greater risk of experiencing four or more ACES.

Using this framework this study will focus on interpersonal traumas. Interpersonal trauma encompasses trauma enacted from one (or more) individual(s) onto another (e.g., sexual assault, abuse, physical assault, and war), throughout the course of the life span, inclusive of the potential effect of cumulative traumas or observing the trauma of a close other (i.e., parent). This definition is narrower than the DSM-V definition of trauma to focus on the interpersonal component to trauma. Based on the work of Felitti et al., (1998), Herman (1992) and van der Kolk (2005) work it would be understood that

traumas caused by another human or humans will have a greater impact on other interpersonal functioning, such as romantic relationships compared to those caused by non-interpersonal traumas such as forces of nature.

Factors involved in understanding the impact of trauma

Part of the increase of research on traumatic experiences in the last few decades has been to better understand the multitude of ways trauma can impact an individual (Breland et al., 2018; Orkibi & Ram-Vlasov, 2018; Wamser-Nanney, Howell, Schwartz, Hasselle, 2017). Experiencing trauma has been shown to have effects on physical health as well as mental health. Afari et al., (2014) conducted a meta-analysis examining the relationship between psychological trauma, defined as a self-reported traumatic experience and/or a PTSD diagnosis, and somatic syndromes. Their study found that those who experienced trauma were 2.7 times more likely to have a somatic syndrome, such as irritable bowel syndrome, chronic fatigue syndrome, chronic widespread pain, and fibromyalgia. Additionally, experiencing trauma may put someone at greater risk of experiencing depression, anxiety, PTSD, OCD, and other mental health concerns (Ozer, Best, Lipsey, & Weiss, 2008; APA, 2000; Kaehler & Freyd, 2009). To study trauma's effect on mental health, Kaehler and Freyd (2009) worked with a community population of 749 participants to complete self-report measures about their trauma history and borderline personality characteristics. The results indicated that exposure to interpersonal traumas in childhood was a significant predictor of developing a borderline personality disorder.

Multiple traumas

The negative effects of trauma may be greater and more varied in those who have experienced Cumulative Trauma (CT) or polyvictimization across the life span (Kira et al., 2008a; Richmond, Elliott, Pierce, Aspelmeier, & Alexander, 2009). In a study focusing on younger and more specific populations, 390 students ages 11-18 who identified as either African American or Iraqi refugee completed individual trauma interviews (Clinician-administered PTSD Scale CAPS-2 PTSD Measure), a self-report trauma measure (Cumulative Trauma Scale: CTS), an IQ assessment (WISC-IV), and a day filled with test stations and psychoeducational or crafting stations (Kira et al., 2011). Throughout this process, all but one participant identified as having endured at least four different types of trauma. The results of this study indicated that abandonment and personal identity trauma (e.g., sexual abuse) had direct negative effects on the individual's IQ. Individuals who had experienced cumulative traumas had a negative effect on all four IQ components: perceptual reasoning, working memory, processing speed, and verbal comprehension (Kira et al., 2011).

Sense of self

Adding to the impacts of trauma on an individual, experiencing trauma can greatly impact one's sense of self. Brothers (2014) conceptualized the experience of trauma as involving a violent uprooting from a familiar "before" and being propelled into an unfamiliar after. She further states that "that which is without familiarity is also without meaning. For this reason, I have come to think about traumatized people as exiles, forced to live in a world that they no longer recognize (Brothers, 2014, p.3)." This loss of a sense of self or loss of trust with the world is the door to understanding the

impact trauma can have on an individual. For example, individuals who have experienced trauma may afterward perceive themselves as unattractive or unlovable, and they may avoid contact with others to protect themselves from expected rejection (Horowitz, 2015). Losing a sense of self can increase the likelihood of experiencing another mental health disorder, such as anxiety or depression, which can contribute to the emotional under-regulation of angry or guilty moods (Horowitz, 2011; Horowitz, 2015; Park, Cohen, & Murch, 1996). Diminished self-esteem lapses in self-confidence or depersonalization are also shifts that may happen when a person loses their sense of self.

Post-traumatic Growth

Just as the experience of trauma are varied, so too are the impacts on individuals who have experienced trauma. People who have experienced trauma demonstrate resiliency and post-traumatic growth in the face of such experiences. Some individuals report positive changes such as finding life more meaningful, valuing relationships more, or discovering spirituality (Arikan, Stopa, Carnelly, & Karl, 2016; Bonanno, 2005c; Tedeschi & Calhoun, 2004). If an individual does experience positive growth after trauma, they typically have less depression, higher well-being, and may have a more secure attachment style (Helgeson et al., 2006). While positive outcomes from trauma are possible, the majority of individuals endorse negative effects following a trauma (van der Kolk & McFarlane, 1996; Mancini & Bonnano, 2006). For purposes of this study, the focus will be on the association between trauma and romantic relationships.

Furthermore, relationship satisfaction can predict decreases in an individual reliving the trauma, emotional numbness, and irritability (LeBlanc et al., 2016). Positive and satisfying romantic relationships can assist individuals in coping with their PTSD

symptoms. However, if a relationship ends, an individual who had previously been diagnosed with PTSD may experience more intrusive thoughts and increased agitation beyond that of an individual who had just ended their relationship without any prior PTSD diagnosis (Chung & Hunt, 2014). Further, PTSD symptoms have been associated with psychological dating aggression, physical relationship aggression, and difficulties in communication (Taft, et al., 2010; Lassri, Luyten, Cohen, and Shahar, 2016).

Interdependence Theory and Romantic Relationships

Interdependence is a defining feature of romantic relationships as it highlights the presence of mutual influence in the development of the relationship over time (Berscheid, 1999; Meuwly & Schoebi, 2017). Interdependence theory assumes that each member of a couple evaluates their personal experiences in fundamentally subjective ways (Meuwly & Schoebi, 2017; Dainton, 2015). However, while each person is inherently subjective in their experience, the nature of mutual influence indicates that the couple transforms their individual motives and actions from those of self-centered motives to relationship-centered motives (Givertz, Segrin, & Woszidlo, 2015). As such, each individual of the partnership is both independent and interdependent (Kelley & Thibaut, 1978; Stanley, Rhoades, & Whitton, 2010). Interdependence over time results in relationship formation, cultivating communication, relational attachment, relationship satisfaction, and commitment (Agnew, Van Lange, Rusbult, & Langston, 1998; Stanley & Markman 1992). As such, Rusbult (1980) extended the interdependence theory into an investment model that links interdependence to the development of commitment. Stanley et al., (2010) indicate that the investment model proposes, “that dependence on a relationship

develops on the basis not only of the level of satisfaction and the quality of alternatives but also of the investment that an individual has put into the relationship (p.244)."

Committed romantic relationships are prime contexts for interdependence to evolve and allow interpersonal needs such as companionship, intimacy, and sexuality to be met. Strong commitment in these relationships promotes interdependent behaviors that provide concrete outcomes and relationship rewards such as mutual prosocial behavior (Givertz et al., 2015). Givertz, Segrin, & Woszidlo (2015) conducted a cross-sectional, self-report survey study with 628 married dyads. Participants' levels of personal commitment, dedication commitment, marital satisfaction, and marital independence and level of participation in joint activities were assessed. Givertz et al. found that there were mixed results with regards to the relationship between commitment and satisfaction. However, the level of interdependence was directly and positively related to marital dyads' satisfaction (Givertz et al., 2015). A relationship with strong commitment promotes interdependent behaviors leading to positive outcomes such as mutual, continuous growth (Givertz, et al., 2015; Holmes, 1981; Kelley, 1979; Rusbult & Van Lange, 2003). As Givertz et al. (2015) examined couples' participation in joint activities, and they found even if one of the partners' participates in the activity to support the other partner it is still cultivating couple identity and creating intimacy and satisfaction as part of the interdependence process.

Communication.

Through the model of interdependence theory, perceptions of a partner's enactment of relational maintenance communication should impact that individual's satisfaction with the relationship. To begin it is important that the couple has similar

relationship standards. Relationship standards refer to a stable cognitive schema relating to an individual's beliefs about what traits should be present in a romantic relationship (Epstein & Baucom, 2002). These relationship standards in married heterosexual couples have been found to affect marital satisfaction indirectly through the couple's communication patterns (Chi, Epstein, Fang, Lam, & Li, 2013). While each partner in a romantic relationship contributes to the communication in that relationship, certain qualities of communication may be more helpful to sustain the interdependence of the couple. In an in vivo study of married couples, it was found that wives' use of positive communication had a positive relationship with overall marital satisfaction (Bloch, Haase, & Levenson, 2014).

After a traumatic experience, the ability to communicate can be decreased, thereby inhibiting the individuals' ability to connect in relationships. Open communication following a traumatic experience has been encouraged for couples as symptoms of trauma have been found to influence relationship satisfaction and relationship functioning (Allen, Rhoades, Stanley & Markman, 2011). Monk and Nelson Goff (2014) studied 50 married couples where at least one member of the couple had been deployed in Military service. Their results indicate that if a partner discloses the trauma it can mediate the impact of trauma symptoms on relationship quality (Monk & Nelson Goff, 2014). Communication is key to understanding how couples are able to maintain their couple identity and assist in prolonging their relationships.

Commitment.

Commitment is the foundation of interdependence theory and has been shown to have a strong positive correlation with relationship satisfaction (Engel, Olson, & Patrick,

2002; Madey & Rodgers, 2009). Further, the commitment had also been found to lower mental health problems, and increase happiness, life satisfaction, and well-being (Braithwaite, Delevi, & Fincham, 2010; Cohen, Underwood, & Gottlieb, 2000; Love & Holder, 2016). Most commitment theorists define commitment in relationships based on factors that are "want to" investments and those that are "have to" (Levinger, 1965; Rusbult, Johnson, & Morrow, 1986; Rusbult, 1980; Stanley & Markman, 1992). Want to investments are those that indicate the desire for the relationship to continue such as sacrificing, couple identity, giving, and communicating desire. The 'have to' investments are aspects that constrain the partners together, such as shared property, financial decisions (house payment, car payment), and children. The level of commitment has been found to be a factor in inhibiting aggression towards one's partner (Slotter et al., 2012). Ninety-nine undergraduates in committed relationships completed the articulated thoughts in simulated situations procedure, which allows researchers to control experientially impactful partner provocations to their participants (Davison Robins, & Johnson, 1983; Eckhardt, Barbour, & Davidson, 1998; Slotter et al., 2012). Slotter et al., (2012) found that participants who were low in commitment displayed significantly more aggression when there was a severe provocation, while those who were high in commitment did not. In conjunction with the literature about increased aggression in those who have experienced trauma, there is a concern about how the intersection of these experiences would play out in relationship functioning.

Relationship Satisfaction.

Experiencing satisfaction in romantic relationships can have a large impact on how an individual continues to behave and invest into their relationship, and as such

continue to cultivate their couple identity (Badr, Acitelli, & Carmack Taylor, 2007; Merrill & Afifi, 2017; Reid, Dalton, Laderoute, Doell, & Nguyen, 2006). Relationship satisfaction can be understood as an attitude toward the quality of the relationship and has been shown to have positive impacts on the relationship (Dainton, Stafford, & Canary, 1994; Goodboy et al., 2010; Monk & Nelson Goff, 2014). Further, relationship satisfaction has been found to mediate the relationship between loneliness and infidelity (Pereira, Taysi, Orcan, & Fincham, 2014). In contrast, relationship dissatisfaction is related to infidelity and psychological distress (Allen and Baucom 2006; Atkins et al. 2001; Hall and Fincham 2009).

Relationship satisfaction can impact an individual's levels of commitment or desire to maintain the relationship. Partners' current relationship satisfaction does not account for how satisfied they believe they will be in the relationship in the future (Baker, McNulty, & VanderDrift, 2017). Baker et al. (2017) found that current satisfaction was positively related to commitment, however, when expectations for the future were added to the model, current satisfaction was no longer associated with commitment. This means that expected satisfaction was more strongly related to commitment than current relationship satisfaction levels. Planning for the future is enabled in a romantic relationship as the expectation of commitment is present, thus deepening the experienced interdependence within the couple.

As stated above, trauma can impact how an individual perceives future decisions or choices. Trauma can also impact how an individual perceives or experiences satisfaction in their relationship. Several studies have demonstrated that trauma symptoms significantly predict their own and their partner's satisfaction in their

relationship, with one study (Nelson Goff, Crow, Reisbig, & Hamilton, 2007) finding that trauma symptoms accounted for 41% of the variance in relationship satisfaction (Davis, Petretic-Jackson, & Ting, 2001; Dekel, Enoch, & Solomon, 2008; Freedman, Gilad, Ankri, Roziner, & Shalev, 2015; Nelson Goff et al., 2007). A randomized control trial was conducted with a portion of the subjects involved in the Jerusalem Trauma Outreach and Prevention Study. The participants of this study had attended the emergency room following a civilian trauma which met criterion A of the DSM (APA, 2013). Through the course of several follow-up interviews and assessments relationship satisfaction and PTSD symptoms were assessed and monitored, the participants were assigned to either the prolonged exposure treatment, the cognitive therapy treatment, placebo, or wait-list control (Freedman et al., 2015). Freedman et al., (2015) found that not only did the increase in PTSD symptoms correlate with a decrease in relationship satisfaction but that relationship satisfaction may drive PTSD symptoms rather than the reverse. This means that natural recovery is enhanced when there is a larger amount of satisfaction in their relationships but impaired with poorer satisfaction (Freedman et al., 2015).

Attachment, Interdependence, and Trauma in Romantic Relationships

Thibaut & Kelley (1986) state, "interdependence is a theory of patterns of interdependence and, assuming that these patterns play an important causal role in the processes, roles, norms of relationships, it is a theory of their consequences" (p.xxi). Inherent in the development of interdependence is a bond or attachment between the partners. While the original work of Bowlby (1969, 1973, &1980), as well as Ainsworth and her colleagues (Ainsworth, Blehar, Waters, & Wall, 1978; Bell & Ainsworth, 1972), was focused on attachment to caregivers, there is a lot of current literature focused on

attachment styles between romantic partners. Mikulincer & Shaver (2012) indicate that attachment can be viewed on a spectrum, "people's attachment orientations can be measured along two roughly orthogonal dimensions: attachment-related anxiety and attachment-related avoidance (p.261)." Attachment-related anxiety is understood as the degree to which an individual worries that in times of need the partner will not be available or sympathetic, which leads to the individual increasing behaviors that will maintain closeness. Where a person falls on the attachment-related avoidance dimension reflects the level to which the individual is skeptical about the partner's ability to help and their benevolence, which causes the person to maintain their independence and decrease their reliance on others. The patterns of parental attachment can exert pervasive influences on individuals' relationships with others as it reflects their general views about the dangers and rewards of romantic relationships (Feeney & Noller, 1990). Attachment styles can have impacts on how individuals make friends, the kind of partners they look for, how they and feel about entering committed relationships and communicate their needs within relationships, thereby impeding or deepening their ability to cultivate interdependence or a couple identity (Feeney & Noller, 1999; Walsh & Neff, 2018).

One approach to understanding the interaction between trauma and romantic relationships is through attachment theory. Certain symptoms of trauma or relationship factors, such as communication, may be impacted more severely based on the individual's attachment style (Mikulincer & Shaver, 2012). Trauma, especially when inflicted by another human, can have a large impact on how individuals form attachments and navigate relationships. Consequently, an individual's attachment style can influence the impact of a traumatic experience just as a traumatic experience can influence an

individual's attachment style. For people who have more attachment-related anxiety or attachment-related avoidance, their symptoms of PTSD can be more amplified than those who had a more secure attachment style (Ogle, Rubin, & Siegler, 2015). Ogle et al., (2015) surveyed a community sample of 1,061 adults about their trauma history, personality traits, attachment styles, and trauma symptoms. Participants who scored higher on attachment anxiety or attachment avoidance endorsed more severe symptoms of PTSD and explained unique variance in symptom severity compared to other individual differences. Further, Ogel et al., (2015) found that the timing of trauma, early life versus adulthood, impacted the underlying relation between PTSD and attachment anxiety. It was determined that involuntary recall of the trauma mediated the relationship between attachment anxiety and PTSD symptoms.

As trauma can impact an individual's attachment style, trauma may also change the dynamics of how the individual is able to communicate, navigate, and understand the world and those around them, specifically their romantic relationships, thereby shifting their couple identity. Attachment theory presumes a reciprocal relationship; infants learn what to expect from the world, and parents are offered affection and the security that their child will be able to navigate the world with confidence (Johnson, 2009). When this is not the case, an individual's attachment system is dysregulated and they attempt to increase or reestablish proximity to an attachment figure. Different attachment orientations cause individuals to approach interpersonal conflict through very different perspectives (Mikulincer & Shaver, 2012). Campbell, Simpson, Boldry, and Kashy (2005) found that more anxious individuals and their partners thought that conflicts would have more negative impacts on the future of their relationship. If an individual has

a secure attachment style this can mediate symptoms of PTSD and decrease the interpersonal problems that are typically found in individuals who have experienced trauma (Alexander, 1992). This is important in understanding how attachment styles impact communication or conflict dynamics in a romantic relationship which can lead to a decrease in satisfaction. Much of the research done on how trauma impacts relating to others focus on shifts or interactions in a romantic relationship. As such, this study will look at interpersonal traumas in relation to romantic relationships.

Differential Effects of Trauma

Much of the research over the last decade has tried to understand the effects of specific traumas on interpersonal functioning, some research has also focused on the impact of trauma and committed romantic relationships. Childhood sexual abuse (CSA) is estimated to occur to about 1 in 10 children in the United States (Townsend, & Rheingold, 2013). It is imperative to understand how this abuse in childhood can impact adult functioning in interpersonal relationships. CSA has been found to have a direct negative effect on romantic relationship satisfaction (Lassri, Luyten, Cohen, & Shahar, 2016; Lassri, Luyten, Fongay, & Shahar, 2017). Further, experiencing CSA increased an individual's self-criticism which in turn also affected relationship satisfaction over time (Lassri et al., 2017). Victims of CSA also indicated higher levels of neuroticism compared to their romantic partners who had not been abused (Busby, Walker, & Holman, 2011). Not only are beliefs about the self affected by CSA's but experiencing a CSA can also increase the number of negative communication patterns an individual enacts in their romantic relationships (Busby et al., 2011).

Other forms of childhood abuse such as physical abuse, neglect, and witnessing abuse in the home also have long-term effects on interpersonal functioning. Philpart et al. (2009) found that witnessing family violence was positively associated with perpetrating acts of sexual violence in romantic relationships as an adult. Research does suggest that individuals who have directly experienced traumas are more likely to experience mental health problems than those who have witnessed a traumatic event (Copelane, Keeler, Angold, & Costello, 2007; Ford et al., 2010; Price, Higa-McMillan, Kim, & Freuh, 2013). Price et al., (2013) did find that children who experienced high interpersonal trauma were more likely to be diagnosed with Oppositional Defiant Disorder and other conduct disorders compared to children who had medium or low interpersonal traumas. In addition to more behavioral disorders, experiencing trauma has been shown to impact the individual's ability to regulate their emotion (Mandavia, et al., 2016). As emotion regulation can impact romantic relationships, experiencing more emotional dysregulation as a result of physical or emotional abuse as a child can lead to more difficulty in cultivating and maintaining relationships (Mandavia et al., 2016; Moss & Schebel, 1993). This is especially true in romantic relationships were part of developing intimacy is being emotionally vulnerable with the partner and believing that a partner is a safe person.

Experiencing any kind of trauma can increase the chance for the perpetration of physical or psychological dating aggression (Taft et al., 2010). Beyond perpetuating the cycle of violence, experiencing physical or emotional abuse in childhood can impact communication styles and personality features. Owen et al., (2012) found that those who had experienced abuse at the hands of a primary caregiver were more likely to feel less respected by their partner than those who hadn't experienced that abuse. No one has the

exact same experience as another, but it seems that those who experience certain traumas are more likely to have difficulties in their interpersonal relationships.

Adults who experience sexual assault can experience a myriad of reactions both internally and from those whom they disclose their trauma to. Several internal structures have been examined to understand how they may mediate negative social reactions to disclosure. Trauma-coping self-efficacy has been found to mediate the impact of negative social reactions, thereby decreasing the severity of PTSD symptoms, whereas trauma-related shame increased internalization of negative social reactions and increased severity of PTSD symptoms (DeCou, Mahoney, Kaplan, & Lynch, 2018). Further, Hakimi, Bryant-Davis, Ullman & Gobin (2018), found that high negative reactions to disclosures of sexual assault were related to higher PTSD, depression, and substance use. If the person who is providing a negative reaction is a romantic partner, it may leave the victim feeling more isolated and rejected (Ponce-Garcia, Madewell & Brown, 2016).

Methodological Approaches and Concerns

When conducting a systematic review equalizing the array of different measures researchers can use is imperative. An initial search of trauma measures yields a search result of over 2,000 measures. This vast number of different measures to assess trauma, a traumatic experience, or symptoms of PTSD indicates a variety of approaches to understanding the impact of a traumatic experience. This also indicates that ensuring each of these measures can be compared is imperative and careful consideration will be necessary to ensure the effects being cited from a study are indeed reflective of the measure that was used.

In the trauma literature, there are only observational studies as a researcher should not be inflicting harm onto a participant. As such, trauma research focuses on three methodological approaches the first being a cross-sectional design, the second being a longitudinal design and the third is a study focused on treatment or interventions. In all cases, the use of a survey is the defining factor of these approaches. Whether it is a self-report measure or a structured interview, this is the key approach for data collection.

With regards to the retrospective self-report, there is the potential for many concerns about the validity and reliability of a self-report measure of this kind. Individuals often tend to remember situations, even if traumatic, as being better than they were or forget about some of the negative experiences they had. In order to maximize the accuracy of the reports, it is important to minimize recall bias (Wiley 2012; Dohrenwend, 2006; Kessler, Mroczek, & Belli, 1997). Dohrenwend (2000) proposed that it may increase the validity of trauma reporting if definitions and/or examples regarding what is and that is not to be included in a trauma exposure or event category. This is especially important when utilizing a control/comparison group. If an individual does not believe their experience falls into a specific category that the research would have placed that event in, then the strength of the comparison of groups is decreased. This is especially important as there is typically only a singular time point when the data is collected for an individual participant. A benefit of this approach is the ability to compare many different variables at the same time. However, this approach does not help in determining cause-and-effect (Heppner et al., 2016).

Longitudinal approach, also known as a time-series design, is defined by the use of multiple observations over a time period (Heppner et al., 2016). In certain longitudinal

designs, there is an interruption in the series that could impact the following observations. For example, when analyzing the impact of a specific intervention on the treatment trajectory of a client, several observations prior to and following the interventions will provide more information on the effectiveness compared to a single observation point. While this methodological approach may allow for a greater understanding of cause and effect, there are other challenges. This approach can have larger rates of attrition as individuals need to engage in the research several times. Further, other life or traumatic events may occur during the course of the study which impacts the individual's responses or results.

Using intervention or treatment studies assists in completing the picture of trauma research. While intervention studies can be very important in understanding how certain mechanisms are mitigating or decreasing the symptoms of trauma. However, these kinds of studies can also make determining what results to use in a meta-analysis difficult. If one was to compare the post-treatment scores to the results of a cross-sectional study where no intervention or treatment is being used the results may be skewed as it is not an equal comparison.

Previous Meta-Analysis

There have been many different meta-analyses on different effects or contexts of experiencing a traumatic experience. However, there have only been two focused on traumatic experiences and romantic relationships. The first meta-analysis on trauma and romantic relationships problems was published in 2009. The authors completed their literature search in 2008 (Taft et al., 2011). Inclusion criteria was a measure of PTSD, measure of relationship discord or relationship aggression perpetration, and some

analysis on the interaction between these two constructs. Through the analysis Taft et al. (2011) found, "a medium sized association between PTSD and intimate relationship discord (p =.38, N=7,973, K=21), intimate relationship physical aggression perpetration (p=.42, N=4,630, K=19) and intimate relationship psychological aggression perpetration (p=.36, N=1,501, K=10) (p.22)." Of their seven moderators (i.e., military vs. civilians, female vs. male, clinical vs. community, United States vs. other, symptom severity vs. diagnosis, self-report vs. collateral reports, dissertation vs. journal article) three contributed to the variance. The first was population type, participants who were in the military had a stronger association between PTSD and physical aggression compared to civilians. Next, men had a stronger association compared to women with regards to physical aggression and PTSD. Finally, community samples, when compared to clinical samples, had stronger associations between PTSD and physical aggression (Taft et al., 2011). An updated version of this meta-analysis was published in 2012 (Lambert, Engh, Hasbun, & Holzer). Lambert et al. (2012) followed the same procedures however they added any articles published since the systematic review of the Taft et al. (2011) had been completed. In order to expand upon their work, the current study will be focusing on intimate trauma, compared to only individuals with a PTSD diagnosis, and will assess committed romantic relationship impacts as opposed to examining relationship problems specifically. Further, studies focused on IPV will not be included. It is the goal to understand how trauma that occurs outside the romantic relationship impacts the dyad. This approach will hopefully cultivate and synthesize a greater understanding of the intersection of trauma and intimate relationships.

Research Question and Hypothesis

Research question for this study is: What is the association between interpersonal trauma and romantic relationship functioning?

H1: Different measures of romantic relationship factors will demonstrate differential associations with relationship outcomes.

H2: Different measures of trauma symptoms will demonstrate differential associations among trauma outcomes.

H3: Those who have been or currently are in the military will experience more negative relationship outcomes than civilians.

H4: Men will have a stronger negative association between trauma and relationship outcomes compared to women.

H5: Trauma's which are endured at a younger age will lead to more negative relationship outcomes.

H6: The results of dissertations will have significantly smaller effect sizes compared to published articles.

H7: Studies conducted inside the U.S. will find that traumas have more negative impact on relationships than studies conducted outside the U.S..

H8: The association between trauma and relationship functioning will vary based on the year of publication.

Chapter 2. Methodology

Inclusion Criteria

Studies included in this review met several criteria: (a) inclusion of a measure of interpersonal trauma, defined as trauma enacted from one (or more) individual(s) onto another (e.g., sexual assault, abuse, physical assault, child abuse and war), throughout the course of the life span, or a population with a diagnosis of PTSD from interpersonal traumas, (b) inclusion of a measure of the romantic relationship quality, (c) study publication after 2008, (d) adult samples, individuals equal or greater to the age of 18, (e) publication in English conducted anywhere in the world, and (f) cross-sectional, longitudinal, quasi and experimental studies. Two researchers working independently screened abstracts from studies identified through the literature search. Disagreements were resolved in conference. Upon beginning the process, it became clear that articles focused on IPV and romantic relationships would conflate the data. As such, the focus was shifted to interpersonal trauma that occurred outside the romantic dyad in order to understand how that impacts the romantic dyad. Further, studies that did not provide correlations or authors who did not respond to emails requesting their data were not included in the final analysis.

Literature Search Strategy

When creating a strategy to conduct the literature search it was important to limit publication bias. Research published in many journals is more likely to present statistically significant findings, that is findings that reject the null hypothesis with a probability of $P<.05$ than all research on the topic (Cooper, 2016). In fact, significant results were more than twice as likely as non-significant results to be recommended for publication (Cooper, 2016). Publication bias can be addressed with a sound and assorted search of the literature described below.

Several different methods were used to obtain studies for the systematic review. The first set of studies came from searching electronic databases. In addition, the method of backward search or ancestry approach was used. The backward search is using the reference list from other articles that have been found in order to assess what literature is missing from the current study (Cooper, 2016). If other articles are found after the first search of electronic databases, those studies were categorized as "articles found by other means." Further, a search of articles included in relevant syntheses and searching journals that have published studies used in this review assisted in identifying all relevant literature. To conduct a search using the electronic databases a list of key terms was set to draw potential studies examining trauma and intimate/romantic relationships.

The resulting term list (see table 1) was comprised of three categories: (a) Trauma terms (e.g., trauma, PTSD, CPTSD, PTSS, interpersonal trauma, sexual trauma, relationship violence, intimate partner violence, physical abuse, emotional abuse, neglect), (b) relationship terms (i.e., Romantic relationships OR marriage OR dating OR partner OR intimate relationship), and relationship factors (i.e., Commitment OR

communication OR Respect OR satisfaction or Marital quality). This term list was also used when searching Internet and organizational databases (Taft et al., 2010).

Electronic Databases

Numerous electronic databases were searched, and the results from these searches were compiled using the citation management program. The databases include: PsycINFO, Public Health Database, Psychology Database, Psychology Collection, Psychology and Behavioral Sciences Collection, PsychiatryOnline, PsycARTICLES, ProQuest Research Library, PILOTS Database, PapersFirst, PubMed, Applied Social Sciences Index and Abstracts (ASSIA), Dissertations & Theses, ICPSR Direct, SAGE Research Methods, Social Sciences Citation Index (Web of Science), University of Denver Dissertations, Academic Search Complete, SocINDEX, Social Services Abstracts, ERIC, Social Work Online, Sociology Database, and UNCRD Publication: Bibliography and Index (Taft et al., 2011; Nienhuis, 2014).

Abstract screening

Abstract screening was performed independently by two screeners who reviewed each of the abstracts obtained through the literature search for study relevance. A coding guide was created and used to screen studies for relevance (Table 3). As the definition of trauma is limited to interpersonal traumas it is important to screen for that during the abstract screening phase. Further, to ensure a complete understanding of the interaction between trauma and romantic relationships, studies examining both positive relationship outcomes and negative relationship outcomes will be utilized. Additionally, cross-sectional, longitudinal, quasi and experimental studies were acceptable for this meta-analysis. Due to the screening guide being based on the inclusion criteria, if any question

was answered “No” indicated that the study was not eligible for this review. For the studies where it was unclear if it could be ruled out or in were obtained for further evaluation. Though the screeners worked independently they met intermittently in order to discuss inclusion decisions and find a consensus on the inclusion/exclusion of studies. The author, who also engaged in the screening, was be the final decider on what is included in the study after the discussion.

Prior to coders coding abstracts on their own, about ten abstracts were selected, and each coder was asked to code the abstracts individually. Once they completed the coding of the selected abstracts there was a discussion on how they made their coding decisions and any mistakes or questions were addressed as a coding team. This process occurred several times until there was substantial agreement between the coders, an agreement rate of 95% or better indicated the coders are ready to begin coding on a large set of abstracts (Cooper, 2017; Card, 2012). The percentage of coder agreement on each portion of the coding sheet was assessed to understand the reliability of the coders (Cooper, 2017).

Coding Process

A structured coding guide was used for each study. This guide included coding information for a multitude of factors (See Table 1). Two coders were used for each abstract and coded their materials independently. They then met monthly to review the decisions made, correct any mistakes, and have congruency on the data. As such, by the end of these discussions there was agreement on all included studies.

Statistical Procedures

Effect Size Calculation

An effect size is the magnitude of effect for a statistical test. Effect size usually quantifies the degree of difference between or among groups or the strength of association between variables such as a group-membership variable and an outcome variable (Card, 2012). As the research question for this review involves the association between two variables (i.e., trauma and intimate relationships), the primary effect size used will be Fischer's Z. Fischer's Z is typically used when the study uses correlational data (Card, 2012). As most studies will have results that are presented as correlation coefficients, a transformation from the correlation coefficient to Fischer's Z is defined as:

$$z_r = .5 \ln \frac{(1+r)}{(1-r)}$$

The transformation is used when relevant data are correlational because the variances of correlations follow asymmetrical distributions and this metric stabilizes the variance of r based on the natural logarithm of the correlation coefficient (Borenstein, 2009; Nienhuis, 2014). For data reporting, Fischer's Z were back-transformed to r since this is a more familiar metric:

$$r = \frac{e^{2zy} - 1}{e^{2zy} + 1}$$

Heterogeneity

There is no expectation that the studies analyzed will yield the similar effect sizes. Heterogeneity refers to the extent to which study effect sizes differ from one another. First, it is important to analyze if the study effect sizes are greater than would be expected by chance. In order to statistically test heterogeneity, Cochrane's Q is used to assess

presence of heterogeneity and I^2 to assess the degree. Cochrane's Q is similar to a chi-square distribution with the degrees of freedom equal to the number of studies (*k*) minus one. The formula for this test is:

$$Q = \sum w_i (ES_i - \overline{ES})$$

In this equation ES_i is each individual effect size, w_i is the inverse weight for effect size i, and ES is the weighted average effect size. Heterogeneity tests assess the between-studies variance where a significant Q indicates that the discrepancy between studies is significantly different from zero.

Model Choice

There are two separate approaches to meta-analyses: fixed and random effects analytic models. For fixed effect models, the assumption is that the study effects are estimating a specific population value. Since there are only a few discrete levels for each variable, the error is assumed to reflect random sampling error and identifiable covariates. If a fixed effect model is used, the level of generalizability is very low for any other level of the study (Card, 2012). With regards to random effects model, there is not the assumption of a single population effect size. Further, when treating the factor as random, theoretically the researcher is sampling from random levels of the population factor. Accordingly, this study will use random effects modeling.

Moderator Analysis

As presented in the introduction, based on previous studies and theoretical considerations there are several different constructs that are serving as potential moderators. For romantic relationships the moderators that may impact relationship functioning/satisfaction are; age of participants, relationship factors (i.e., communication,

commitment). With regards to trauma, there are several moderators that could be impacting an individual's experience; gender, age of experiencing trauma, and symptoms of trauma. Other moderators were unable to be coded (e.g., length of relationship, relationship status, and time since traumatic experience.)

Methodological moderators will be article vs. dissertation, U.S. population vs. another country and military vs. civilian populations. Further, this meta-analysis will also include type of measure used to assess trauma symptoms, and type of measure used to assess relationships.

Computer Program

To conduct the meta-analysis in this study, the computer program Comprehensive Meta-Analysis (CMA). CMA was chosen for this study because past meta-analyses utilized this program when they have been complicated by heterogeneity and required moderator analyses. CMA was used for the primary analyses, the estimations of publication bias, and the moderator analyses.

Missing Data

In any systemic review missing data can be a problem. Missing data is a broad term used to address missing studies (lack of publication or access), missing effect sizes, and missing descriptor variables. The first step in addressing missing data is contacting study authors for the missing information. For studies with a publication date of 2008 or later, an email was sent with a request to the lead study authors requesting the information (see table 2 for list of authors contacted).

There are several analytical methods of handling missing data. According to Pigott (2009) all of these methods were based on assumptions regarding the reasons why

the data was missing. Majority of these methods work best for data that is missing completely at random. If a researcher begins to make assumptions about why certain data is missing, this could lead to a further bias in the reporting and discussing the results.

Addressing Publication Bias

Several methods were utilized to minimize publication bias. Several of the methods were conducted in CMA. One-way CMA can be used to assess publication bias is through graphing funnel plots. The funnel plots are an image of the effect sizes from each study against a measure of its size/precision. Commonly, the effect size estimates are on the X-axis and the size/precision on the Y-axis. In the absence of publication bias, the funnel plot symmetry of the funnel plot decreases and gaps appear suggesting that some studies are missing.

Further, when assessing a funnel plot CMA offers the option of the Trim and Fill methods (Duval & Tweedie, 1998, 2000a, 2000b). With this method, adjustments are made for publication bias by correcting the funnel plot asymmetry. Trim and Fill estimates how many studies would need to be trimmed off the funnel to create symmetry at the center. In an iterative process the studies creating asymmetry are cut and added back into the funnel plot. Typically, smaller studies are cut as they tend to lead to more asymmetry. Once the plot is symmetric the extreme studies are added back into the plot with mirror image studies to maintain symmetry. There is no impact to the effect size, but this process serves to correct the variance. However, in the presence of significant heterogeneity it can be difficult to interpret these results. In addition, Trim and Fill requires a large number of studies as such a few extreme studies can cause the assumption of publication bias coming from the distribution of asymmetry (Peters,

Sutton, Jones, Abrams, & Rushton, 2007; Terrin, Schmid, Lau, & Olkin, 2003; Card, 2012; Taft et a;., 2011). The trim and fill analysis is best thought of as a sensitivity analysis, providing possible hints about the presence, nature, and extent of publication bias.

Chapter 3: Results

The search strategy identified 1441 relevant works. Through abstract screening the number of relevant works was 290 studies and 22 reviews (i.e., meta-analysis and systematic reviews). Snowballing of the reviews produced 28 additional articles, 9 of which were included in the final analysis. Full text screening revealed 77 studies with sufficient statistics to code. Authors whose articles fit the inclusion criteria but whose publications did not provide correlations were emailed. A graph detailing the number of studies excluded at each point in the process is available in Table 5. The abstracts were coded by the author and the same abstracts were divided up between a team of five coders. As such two different people coded each abstract. Coder agreement was 71.3% after the first pass at coding. After analyzing the discrepancies between coding sheets, disagreements were resolved in conference.

Description of Studies

Seventy-seven studies on romantic relationships and PTSD were included in the analysis (N=54,141). Seventeen studies were dissertations, and fifty-nine were published in peer reviewed journals. Thirty-two studies had samples of veterans or active duty soldiers, another eleven had veterans or active duty soldiers and their civilian partners. Of the twenty-five articles focusing on individuals who had experienced childhood trauma and assessing how those traumas may impact current adult romantic relationships, five studies included only female participants compared to one study who only recruited male

participants. The individuals in these 77 studies reported a range of interpersonal traumatic events including childhood neglect, sexual assault, being a prisoner of war, and combat. Ten of the studies included participants from countries other than the U.S., including Canada and Israel. Only one study (Hubbard, 2017) looked at post-traumatic growth as opposed to trauma symptoms. Correlations varied in direction depending on the outcome measure used to assess relationship quality. The magnitude of the correlation coefficients in the 77 studies ranged from .67 to .02.

Interpersonal Trauma and Romantic Relationship Functioning

The overall research question for this study was: what is the association between interpersonal trauma and romantic relationship functioning? After running the meta-analysis through CMA the combined effect size for the individual studies examining the relationship between trauma and romantic relationship was r= -.202[1]. This effect size used data collected from 77 studies, including all measures utilized in those studies the number of correlations used was 291. The standard error (SE) was 0.05 giving the overall effect size a 95% confidence interval of -.218 to -.186. The magnitude of this relationship indicates a small to medium-sized effect between interpersonal trauma and romantic relationship functioning. The data for the overall analysis is displayed in a forest plot in Table 7.

There was a great deal of variability across the studies used in the present analysis. The group of studies cannot be considered homogenous, Q (290) = 1771.766, p < .001. This statistic indicated that the differences between the study effect sizes are

[1] The correlation by study was r=-.240

likely due to more than just random error. The I^2 statistic was 84% indicating true heterogeneity to total variance across the studies used in this analysis. In order to explore the sources of heterogeneity, analysis of moderators was conducted as well as determining any evidence of publication bias.

Publication Bias

A funnel plot was used as the first means of determining the extent of any publication bias. Each point on the funnel plot displays a study with the standard error as the Y-axis and the risk-ratio on the X-axis. If a study has a larger N they have smaller standard errors and appear at the top of the plot whereas studies with smaller populations have larger standard errors and appear at the bottom. If a meta-analysis is affected by publication bias it would show asymmetry with a large gap between studies at the top and bottom of the plot. The funnel plot displayed in Table 8, shows fairly symmetric distribution of studies. While there is some scatter in the plot, due to heterogeneity, the studies are symmetric despite the scatter. It does not appear that sample size related to different effect, as the plotted effects tend to be close to the overall effect size.

Trim and fill analyses is used in addition to the funnel plot to estimate any publication bias. Using CMA, a Trim and Fill analyses of the data was used to examine the left and right sides of the overall effect size. The results of these tests are in Table 9. The analysis of the left side added no studies leaving the adjusted effect size of r= -.202. This adjusted effect size does not differ at all from the original effect size (r=-.202). The right-side analysis made significant changes adjusting 53 studies. As such, the adjusted effect size was r= -.158 compared to the original r=-.202. Based on the Trim and Fill

analyses it can be concluded that the overall effect size was influenced by publication bias. However, this also seems to be a good representation of the literature.

Moderator Analysis

As stated in the methods section the moderators examined in this meta-analysis were article vs. dissertation, U.S. population vs. another country and military vs. civilian populations, trauma measure used, relationship measure used, gender of participants, and age of experiencing trauma. It should be noted that the number of studies (k) for many of the moderator analysis does not always equal the total number of studies. This is because some studies did not report certain variables and were therefore excluded, lowering the number of included studies. The table presenting which moderators are applicable to each study is in Table 10.

Relationship Measure.

H1: Different measures of romantic relationship factors will demonstrate differential associations with relationship outcomes. The null hypothesis was rejected with regards to relationship measures. Overall correlation was (k=77) r=-.190, p<.001 with Qbetween(21) = 279.794, p<.001. The strongest negative relationship was the ENRICH Marital Satisfaction Survey (EMS; Fowers and Olson, 1993, k=1) r=-.516, p<.001. See results in Table 10 and 11, and Figure 1.

Example items from common measures.

The Dyadic Adjustment Scale (DAS, Spanier, 1976, k=17) focuses on dyadic consensus, dyadic satisfaction, dyadic cohesion, and affectional expression. Using a 6-point Likert scale, participants are asked questions such as, “How often do you discuss or have you considered divorce, separation, or terminating your relationship?”,

and “Do you kiss your mate?” (Spainer, 1976). The Revised Dyadic Adjustment Scale (RDAS, Busby et al., 1995, k=5), is a revised version of the DAS. This 14-item scale looks at three of the four original subscales, no longer using the affectional expression subscale. The other scale that was most frequently used was the Relationship Assessment Scale (RAS, Hendrick, 1988, k=14). The RAS uses a 5-point Likert scale and poses questions like, “How often do you wish you hadn’t gotten into this relationship?” and “How well does your partner meet your needs? (Hendrick, 1988).” A larger portion of relationship measures were Not Specified (k=5). For example, Larsen et al., (2011) used three questions to measure relationship stability, “how often have you thought your relationship was in trouble?”, “How often have you thought seriously of breaking off the relationship?”, and “How many times have you separated from your partner?” These items were created based off the RELATE study but were not identical items.

Trauma Measure.

H2: Different measures of trauma symptoms will demonstrate differential associations among trauma outcomes. What trauma measure was used to assess trauma was a significant moderating variable. A detailed chart with each measure used is presented in Table 10 while the results are presented in Table 12 and Figure 2. The correlations range from the Harvard Trauma Questionnaire (k=1) r= -.538 to the Stressful Life Event Screening Questionnaire (SLESQ; Ruhlman, 2018 a) (k=1) r=.071. While all measures are assessing trauma it does not appear to be a homogenous group $Q_{between}(22) = 256.221$, $p<.001$.

Example items from common measure.

There were several studies (k=6) in which the trauma measure was not specified. Most of these asked specific questions such as, “How often was a family member sexually abusive towards you (Dagley et al., 2012)?” or ”neglect of a child’s basic physical or cognitive needs, defined as a caregiver’s failure to provide adequate hygiene, shelter, clothing, medical care, supervision, or education (Labella et al., 2018).” The three most frequently used trauma questionnaires were the PCL (k=43 Weather et al., 2013), Modified PTSD Symptom Scale (MPSS, k=2, Falsetti et al., 1993), and the Childhood Trauma Questionnaire (CTQ, k=8, Pennebaker & Susman, 2013). The PCL has had several different iterations, the original PCL for DSM-IV, the PCL-5 for the DSM-V, the PCL-M for military populations, PLC-S for a specific stressful event, and the PCL-C for civilian populations. All forms were condensed into the label PCL for this analysis. The prompt for the PCL is “Below is a list of problems that people sometimes have in response to a very stressful experience. Please reach each problem and then circle one of the numbers to the right to indicate how much you have been bothered by that problem in the past month (Weather et al., 2013).” For the military the prompt focused on “stressful military experiences,” where it is more general for the PCL-C and the PCL-S. All forms present the same symptoms questions such as, “avoiding memories, thoughts, or feelings related to the stressful experience?”, “Loss of interest in activities that you used to enjoy?”, and “Having difficulty concentrating?” (Weather et al., 2013) to which the respondent indicates how bothersome it is on a 4-point Likert scale.

The CTQ prompts participants to identify events that “you may have experience prior to the age of 17 (Pennebaker & Susman, 2013).” For each event the participant

indicates occurred they are then asked their age at the time of the event and then how traumatic the event was and how much they confided in other about this trauma (Pennebaker & Susman, 2013). This is followed by questions about events that may have occurred in the last 3 years. Again, the participants are then asked to indicate how traumatic this event was on a 7-point Likert scale and how much they confided about the event with other on another 7-point Likert scale. With regards to the MPSS (Falsetti et al. 1993) respondents were asked, "have you had repeated bad dreams or nightmares? About which event(s)?" They are then asked to rate how often and how upsetting each symptom was (Falsetti et al., 1993).

Military.

H3: Those who have been or currently are in the military will experience more negative relationship outcomes than civilians. Participants status as veterans/active duty military (k=44) was a significant moderating variable compared to civilian population (k=45). Of the 77 articles 14 split their data based on military/veteran and civilian partners, this data was run with each respective group, thus the k's are larger due to this split. Veterans and active duty military were associated with a stronger relationship between PTSD symptoms and poor relationship functioning (r = -.251) compared to civilian populations (r = -.170) with $Q_{between}(1) = 20.451$, $p < 0.01$. Details about these studies can be found in Table 13 and Figure 3.

Gender.

H4: Men will have a stronger negative association between trauma and relationship outcomes compared to women. Gender of participants was a non-significant moderating variable (Table 14 and Figure 4). Although most studies used a

mixed gender sample (k=57) there were a significant number of correlations provided for male (k=8) and female (k=12). From these studies it appeared that men's PTSD symptoms seem to have a greater negative impact on their romantic relationships (r = -.207) as compared to women (r = -.185) which is statistically significant than zero for both men and women. In addition, the studies with mixed samples seemed to have the strongest negative correlation between trauma symptoms and relationship functioning (r = -.214). Nevertheless, with a $Q_{between}(2) = 2.826$, p = .243 the individual findings are not significantly different from each other, meaning the gender differences found are irrelevant.

Age of Trauma, Type of Study, Country, and Year of Publication

H5: Trauma's which are endured at a younger age will lead to more negative relationship outcomes. As hypothesized, age of experiencing trauma was a significant moderator (Table 15 and Figure 5). However, it was not as originally hypothesized. Instead of childhood trauma (k=25, r=-.157, p<.001) being correlated with more negative relationship outcomes, trauma experienced in adulthood (k=40, r=-.265, p<.001) was found to have a significant impact on relationship functioning. The $Q_{between}(1)$= 33.398, p<.001.

H6: The results of dissertations will have significantly smaller effect sizes compared to published articles. There was not a significant difference between type of study, published articles (k = 59) compared to dissertations (k = 17). Although, dissertations presented smaller negative correlation between PTSD symptoms and romantic relationship functioning (r= -.186, p<.001) in contrast to articles (r= -.210,

p<.001), the difference is small and the heterogeneity was not significant ($Q_{between}(1)$= 2.404, p=.121). Results are presented in Table 16 and Figure 6.

H7: Studies conducted inside the U.S. will find that traumas have more negative impact on relationships than studies conducted outside the U.S. Country in which the study took place was not a significant moderating variable. While the individual correlations are different from zero, International studies (k=10, r=-.179, p<.001) and U.S. (k = 67, r=-.211, p<.001) the heterogeneity indicates there is not a significant difference between U.S. and international publications with a $Q_{between}(1)$= 4.067, p = .044. Presented in Table 17 and Figure 7.

H8: The association between trauma and relationship functioning will vary based on the year of publication. Year of publication also yielded a significant difference (Table 18 and Figure 8). Studies from 2014 (k=7) had the strongest negative correlation between PTSD symptoms and relationship functioning (r=-.313, p<.001). The other years range from r=-.140, p<.001 in 2015 (k=6) to r=-.240, p<.001 in 2011 (k=4). Other years are as follows; 2009 (k=4, r= -.163, p<.001), 2010 (k=5, r= -.169, p<.001), 2012 (k=10, r= -.238, p<.001), 2013 (k=8, r= -.171, p<.001), 2016 (k=6, r= -.222, p<.001), 2017 (k=11, r= -.232, p<.001), 2018 (k=15, r= -.182, p<.001), and 2019 (k=1, r= -.160, p<.001). The Qbetween(10)= 32.250, p<.001.

Chapter 4: Discussion

The present study analyzed the association between interpersonal trauma and romantic relationship functioning. While numerous other studies have explored the relationship between interpersonal violence and relationship functioning (Lambert et al., 2014; Taft et al., 2011), alternative areas of interpersonal trauma were analyzed for this study. Thus, the current study focused on how interpersonal trauma outside the romantic dyad impacted the functioning of the romantic relationship. A small to medium-sized effect was observed between interpersonal trauma symptoms and romantic relationship functioning. The size of the finding suggests that the connection may be bidirectional for the experience of trauma symptoms and romantic relationship functioning. The literature suggests that the severity of PTSD symptoms likely has a negative impact on romantic relationship functioning (Allen, Rhoades, Stanley, & Markman, 2010; Lambert, Engh, Hasbun, & Holzer, 2012; Monson, Taft, & Fredman, 2009; Taft, Watkins, Stafford, Street, & Monson, 2011). However, this analysis' findings may also indicate the more positive relationship functioning in the dyad the fewer trauma symptoms are experienced (LeBlanc et al., 2016). Understanding the constructs that may underlie the connection will help elucidate this bidirectionality.

One potential explanation of the findings may rest with attachment theory that can be affected both my trauma and romantic relationships. Attachment has been associated

with both trauma and relationship functioning over the years (Davis, Petretic-Jackson, & Ting, 2001; Dekel, Enoch, & Solomon, 2008; Freedman, Gilad, Ankri, Roziner, & Shalev, 2015; Nelson Goff et al., 2007). In this study, the positive association between more positive relationship functioning and fewer trauma symptoms might indicate the power of secure attachment. Similar to secure attachment in childhood, secure attachment in romantic relationships are characterized by responsiveness to expressed needs (Hazan & Shaver, 1994). Showing distress around a significant other while receiving compassion, support, and comfort increases perceived security in the relationship. Survivors of trauma are likely not triggered as easily when they know they have a responsive and reliable support system. For example, one research team found that there was no connection between PTSD symptoms and relationship functioning among participants with secure attachment orientations (Itzhaky, Stein, Levin, & Solomon, 2017).

Conversely, greater attachment insecurity may exacerbate the connection between increased PTSD symptoms and poor relationship functioning (Itzhaky, Stein, Levin, & Solomon, 2017). Knudson (2015) found that more reported PTSD symptoms led to engagement in more insecure attachment styles. In addition, those with increased insecure attachment orientations reported less satisfaction in their relationships. Ruhlmann et al. (2018a) observed that in dual-trauma couples when higher levels of PTSD symptoms were reported by both husbands and wives, they also endorsed lower levels of attachment promoting behavior. This indicates that participants perceived both themselves and their partners to have engaged in fewer secure attachment behaviors.

Over time attachment orientations continue to interact with trauma symptoms and relationship functioning. For more avoidant attachment styles, the addition of emotional numbing due to trauma may cause greater relationship distress in the dyad (Garrison, Kahn, Miller, & Sauer, 2014). Campbell and Renshaw (2013) recruited from a group of active military members and their partners after completing a relationship education course. Results, gathered over the course of several months, demonstrated emotional numbing accounted for significant decrease in relationship satisfaction by both the service member and their partner (Campbell & Renshaw, 2013). Thus, in addition to attachment styles, specific elements of attachment may provide important information regarding relationship satisfaction and trauma. While there was significant variability in the overall analysis, some of that variability can be explained by moderators.

Measures of Relationship

The type of romantic relationship measure used was a significant moderator of the association between trauma and romantic relationship functioning. Despite this, there was no clear pattern regarding the distinctive relationship features captured among measures that accounted for these differences. That is, studies that utilized the same romantic relationship measure had varying magnitudes in their association with trauma symptomology. Incorporating this into the interdependence theory, trauma may be best conceptualized as a subjective individual experience rather than a collective dyadic experience. As such, it may not be the measures themselves that are significantly different, but the people being measured. When looking at the most commonly used measure the DAS (Spainer, 1976), correlations with PTSD and DAS accounted for the

strongest negative correlation (r=-.67) as well as the strongest positive correlation (*r*=.607.

Analysis variables may play a role in the results of this study. As some studies used multiple relationship measures, analyses were conducted at the subgroup level. However, analyzing subgroups, as opposed to study level variables, may have accounted for some significant differences. Since many of the measures were only used in one study the results may highlight outlier effects as opposed to certain aspects of a measure being important.

Measures of Trauma

The next significant moderator was the type of trauma measure utilized. Some trauma measures simply asked how many traumas a person had endured in their lifetime (Ruhlman et al., 2018a; Nelson, 2012; Sullivan et al., 2017), whereas other study measures assessed current trauma symptoms. In several studies, the number of traumas was positively correlated with relationship satisfaction, while trauma symptoms were negatively correlated (Ruhlmann et al., 2018; Sullivan et al., 2017). There are several ways to interpret this. There was little clarity regarding the length of time since traumatic experiences for many studies. For example, some participants may have experienced multiple childhood traumas with no subsequent traumatic experiences. Therefore, various factors (e.g., time, therapy, corrective experiences) might impact the of those traumatic experiences and thus, more positive relationship functioning is present.

Individuals who experience trauma often display immense resiliency (Helgeson et al., 2005; Arikan, Stopa, Carnelly, & Karl, 2016; Bonanno, 2005c; Tedeschi & Calhoun, 2004). Those who have lived through more traumas may have learned more adaptive

interpersonal skills. As such they are better able to select partners who can attune to their needs. Inversely, an individual who has experienced more traumas inflicted by other individuals may lower their threshold for what they consider to be acceptable or satisfactory in a romantic relationship (Owen, Quirk, & Manthos, 2012).

In addition to number of traumas, trauma symptoms were also significantly correlated to relationship satisfaction. The negative correlation between higher trauma symptoms and relationship satisfaction may be due to the nature of trauma symptoms. Avoidance, emotional numbing, and withdrawal are all part of the trauma symptoms as stated in the DSM-V (APA, 2013). These symptoms directly impact an individual's ability to express their needs and allow their partner to feel aligned with them. Participants that communicated their combat-related experiences with their spouse had a lower severity of trauma symptoms than those who did not (Allen, Rhoades, Stanley, & Markman, 2010).

Military and Civilian

The significant difference between military (r=.251) (active duty and veteran) and civilian populations (r=-.170) may be due to several different factors. There is a high portion of the military population who have experienced traumas prior to entering the military (Zinzow, Grubaugh, Monnier, Suffoletta-Maierle, Frueh, 2007; Zaidi & Foy, 1994). The presence of other traumatic experiences may limit the internal resources an individual has to navigate other stressors that occur. Deployment and reintegration are large sources of stress and as such may increase the veteran's relationship distress. Oseland (2012) studied veterans and their partners, both members of the dyad had experienced and interpersonal trauma and found a significant negative correlation

between the RDAS (Busby et al., 1995) and the PCL total score (Weather et al.,2013). This significant correlation was similar to the overall finding from this analysis.

Particularly among military service members and their partners, individuals with more anxious attachment experience greater barriers to positive relationship functioning. The routine of deployments and reunions can exacerbate attachment anxiety, by increasing reunion uncertainty (i.e., the combination of daily routines being disrupted and uncertainty about the relationship). Knobloch, Knobloch-Fedders, & Yorgason (2018), found that reintegration was more difficult after an individual was returning from combat when there was greater reunion uncertainty, this was consistent over many deployments/reintegration. Those who had less reunion uncertainty had easier reintegration over time (Knobloch, Knobloch-Fedders, & Yorgason, 2018). Attachment plays a continued role in the impact of trauma on the relationship over time. Those with more secure attachment orientations continue to endorse greater relationship function and fewer trauma symptoms.

While in military culture people have their "battle buddies" to communicate with about their shared combat experiences and process the impact, when they return home that communication may be more limited, and the romantic dyad may expect to be the supportive person instead. With civilian couples this dynamic may shift, as there is not a set community and group with which to seek support from the romantic partner may be more frequently engaged in conversations about the impact of a traumatic experience. As sharing about internal experiences is an important aspect of feeling connected and decreasing impact of trauma (Allen, Rhoades, Stanley & Markman, 2011), this may

account for some of the differences in experiences for service members/veterans compared to civilians.

Age of Trauma

Trauma that was experienced in adulthood (r=-.265) was found to be a significant moderator on relationship outcomes compared to trauma experienced in childhood (r=-.157). Lambert et al., (2013) had used a moderator assessing the time that had passed since trauma and found that more recent traumas had a significantly different impact on psychological distress. For this study this moderator was adjusted to age of trauma, rather in adulthood or childhood. The impetus was based on the literature from van der Kolk (2005) and ACES (Felitti et al., 1998) about the long-lasting impacts childhood trauma can have on the individual. However, for van der Kolk the focus is on child sexual abuse which is often not defined in the articles. Therefore, the nature of the trauma in childhood may have a greater impact than the timing of childhood.

Year of Publication

Year of publication was included in this analysis due to the change of the DSM from DSM-IV to DSM-V occurring in 2013 (APA, 2013) and was found to be a significant moderator. As the definition of PTSD and the threshold for diagnosis shifted, it was thought the approaches to studying trauma or the frequency of the topic may increase. Indeed, in 2018 there were 15 articles focused on relationships and trauma. Total after the publication of the DSM-V there were 46 articles that were included in this analysis from 2014-2019, while 31 articles used in this were published from 2009 through 2013. It should be noted some of the studies are utilizing data collected years

prior to this updated publication. As such, while year of publication was a significant moderator it was not due to the factors originally hypothesized.

Non-significant Moderators: Gender, Type of Study, & Location of Study

No significant differences based on gender was found, this validates that trauma can affect everyone. Many studies split their participants into husbands and wives or men and women (see Table 10**)**. However, regardless if the trauma is from combat, family of origin or an assault as an adult, it can still have a negative impact on a romantic relationship functioning.

Dissertations can present information that may not have as strong correlations as published articles due to publication bias (Cooper, 2016). Publication bias is still pervasive as journals typically do not want to publish studies where there were not significant results or had small effect sizes. Though this limits the ability to cultivate a clear picture of a concept the use of dissertations assists in providing more data that may not have a strong or significant outcome. The value in being able to access dissertations through different search engines provides invaluable data that may not be captured through published articles alone. However, in this analysis there was not a significant difference between published articles and unpublished dissertations.

Location was not a significant moderator in this analysis. Since the previous meta-analysis on this topic (Taft et al., 2011; Lambert et al., 2013) there has been an increase in awareness on the impacts of trauma. These changes in the culture may have played a role in the lack of differences between the U.S. and other countries.

Limitations of the Research

Literature was only collected through databases available through University of Denver and Vanderbilt University. While both psychology and social work databases were used this still may limit the accessibility to different sources. Many articles were requested through inter loan library, but this did not provide access to all materials. Though many dissertations are available through ProQuest databases this does not by any means indicate that all are accessible. Moreover, there was not the use of abstracts or contacting of authors through listservs or other means to gain access to grey-literature.

IPV was not studied so as to focus on trauma that occurs outside the dyad. As such any study that included a measure of IPV was excluded from the analysis. However, IPV still may be present in a relationship that has been included in the analysis. There is no way to ensure that those who are responding to the PCL or other measures are not endorsing symptoms based in a trauma occurred at the hands of their partner.

Overall, the research was almost completely focused on different sex couples. Some studies excluded same sex couples from the final analysis due to their limited representation. However, this has been found unnecessary in the relationship literature and may continue to perpetuate gender stereotypes (Horne & Biss, 2009; Kurdek, 2005; Kurdek, 2006). While some articles indicated they included same sex couples in the analyses they are still vastly underrepresented in the literature. With homophobia, microaggressions, and discrimination as experiences that could be considered interpersonal trauma it is a wide gap in the understanding of the impact of interpersonal trauma on the romantic dyad.

Future Research

It will be imperative to continue to explore Post Traumatic Growth (PTG). Indeed, only one study used a measure that focused on PTG (Hubbard, 2017). All others focused on symptoms of trauma, the experience of trauma, or negative impacts. As such there is limited understanding of the full spectrum of the impact of traumatic events on individuals and relationships as a whole. Approaching humans from a strengths-based approach (Caffaro, 2017; Block, et al., 2018) may assist in destigmatizing the experience of a trauma and will allow for more language around the experience.

The field may want to continue to be specific in the type of trauma the focus is on. Many studies have included abuse that occurs within the romantic dyad and how that impacts relationship functioning, which may conflate some of the findings. Many of the measures did not ask for a specific trauma to be identified in process of completing the forms. While other trauma measures use the presence of specific traumas as the indicators as opposed to symptoms. As van der Kolk and colleagues indicate different traumas may has different outcomes with regards to interpersonal dynamics and both treatment approaches and goals.

Another study could be done looking at the impact of one partner's PTSD symptoms on the other person in the relationship. As this analysis focused solely on the direct connection of individuals' PTSD measure with that person's relationship scores. As relationship literature shows perception is an important aspect of romantic relationships (Campbell, Simpson, Boldry, & Kashy, 2005; Lemay, 2014; Busby, Walker, & Holman, 2011). Therefore, husband or wife's perception of PTSD symptoms

and their relationship functioning may have a larger impact in the overall dyad functioning that the direct correlation.

Conclusion

There is a connection between interpersonal trauma and romantic relationship outcomes. It is not a strong relationship but one that is pervasive and should be taken into consideration when understanding the functioning of a relationship or the impact of a trauma. In working with couples, in either research or clinical work, trauma history and relationship functioning should be assessed. Clinically, inclusion of a partner in trauma-focused therapy may prove to increase efficacy of the work. This is especially true with individuals who have endured a trauma more recently. There is still much to be gleaned about the intersection of traumas with romantic relationship functioning. Nevertheless, this study continues to demonstrate that the connection is a paramount part of gaining insight into how trauma and relationships move with or against each other.

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APPENDIX

Table 1: Consolidated Database Search Results

Database Used	
Authors Names	1. 2. 3. 4.
Year of Publication	
Type of publication	
Abstract	
Journal	
Volume	
Issue	
Pages	
DOI	

Table 2: List of Authors Contacted for Data

Adrian Blow
Dean Busby
Catherine Caska
Jeffery Cigrang
Rachel Dekel
David DiLillo
Ellen Fischer
Myron Friesen
Sarah Heavey
Mark Knox
Jenna Miskiewicz
Candice Monson
Nicole Pukay-Martin
Jeremiah Schumm
Bonnie Vest
Neil Weissman
Mark Whisman
Stephanie Wick

Table 3: Abstract Screening Guide

Study Inclusion Criteria:	

1. Does the document report on a research study?	0. No 1. Yes, but a review 2. Yes 3. Can't tell/not sure **IF NO THEN STOP** **IF REVIEW THEN SKIP TO QUESTION 3**
2. If yes, is this a quantitative research study	0. No 1. Yes 2. Can't tell/not sure **IF NO THEN STOP**
3. Does this document report on trauma?	0. No 1. Yes 2. Can't tell/not sure **IF NO THEN STOP**
3. Does this document measure/examine relationships/intimate relationships/ romantic relationships?	0. No 1. Yes 2. Can't tell/not sure **IF NO THEN STOP**
4. Is this a treatment study?	0. No 1. Yes 2. Can't tell/ not sure **IF NO THEN GO TO 5**
5. Is this a cross-sectional study?	0. No 1. Yes 2. Can't tell/ not sure **IF NO THEN STOP**

Table 4: Coding Guide

Study Level

	Publication Date
	Author(s)
	Title
	Publication Type 1 – Journal Article 2 – Dissertation 3 – Other

Sample Level

	N Participants
	1- Couples 2- Individuals
	Gender of Participants

	1- Male 2- Female 3- Mixed 4- Not stated
	Military or Civilian 1- Military 2- Civilian 3- Mixed 4- Not stated
	Age of Trauma 1- Childhood 2- Adulthood
	Type of Relationship Measure 1- Self-Report 2- Other assessed
	Name of Relationship Measure
	Type of Trauma Measure 1- Self-report 2- Other assessed
	Name of Trauma Measure
	Location of participants 1- United States 2- International

Effect Size

	Correlation *n*
	Correlation *r* between trauma and relationship functioning
	Which aspects are being assessed (subgroup)

If more than one repeat until complete

Table 5: PRISMA Flowchart

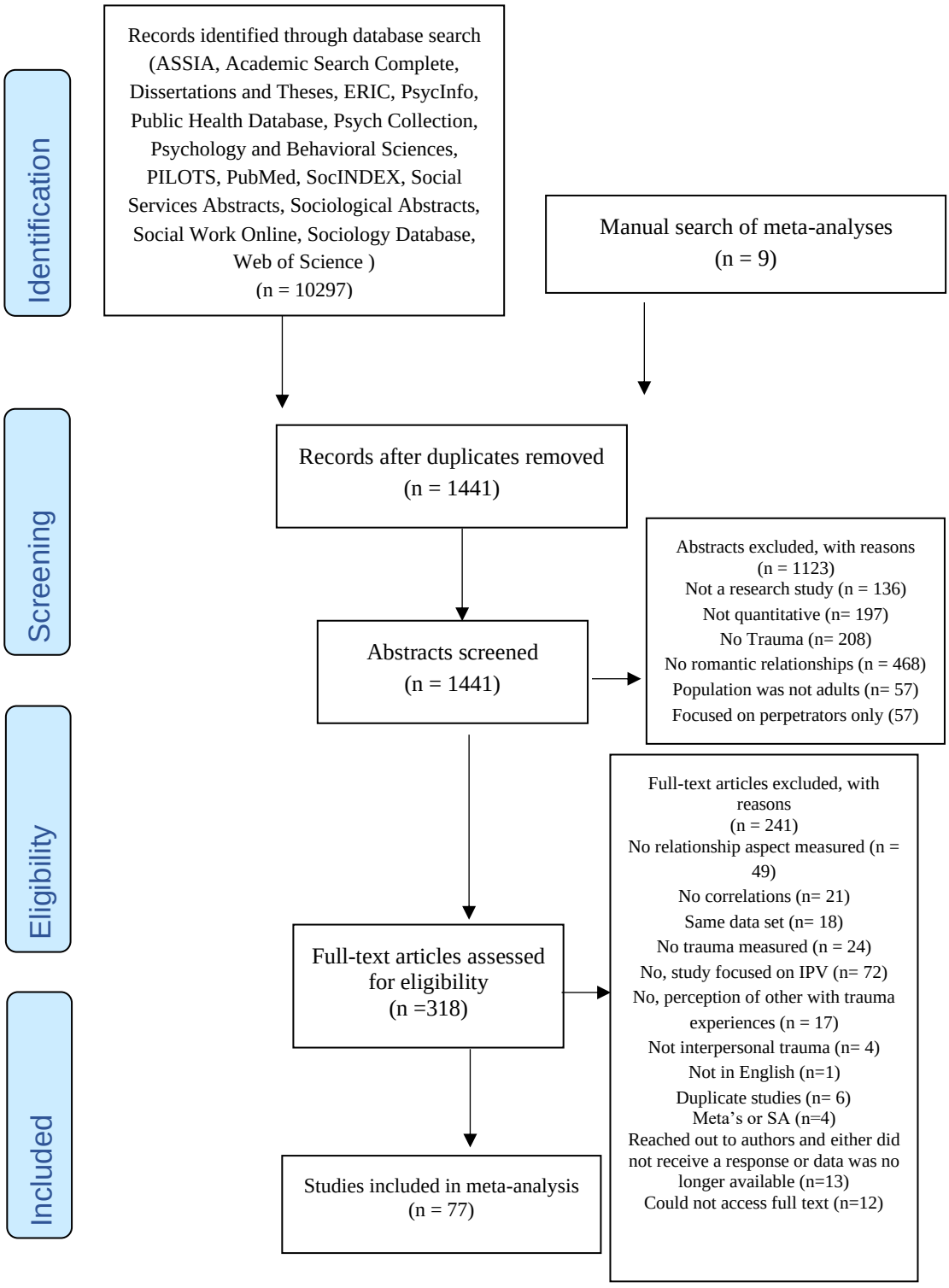
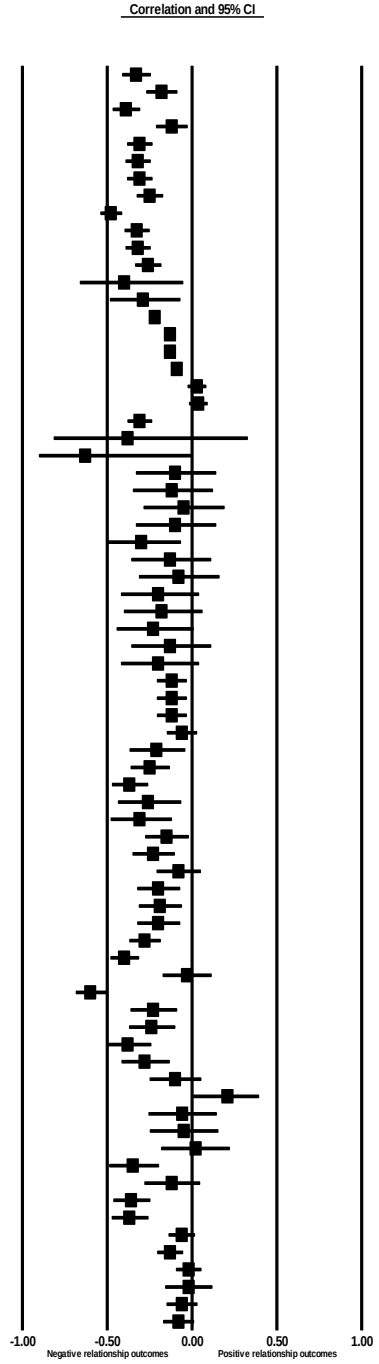


Table 6: Overall Results

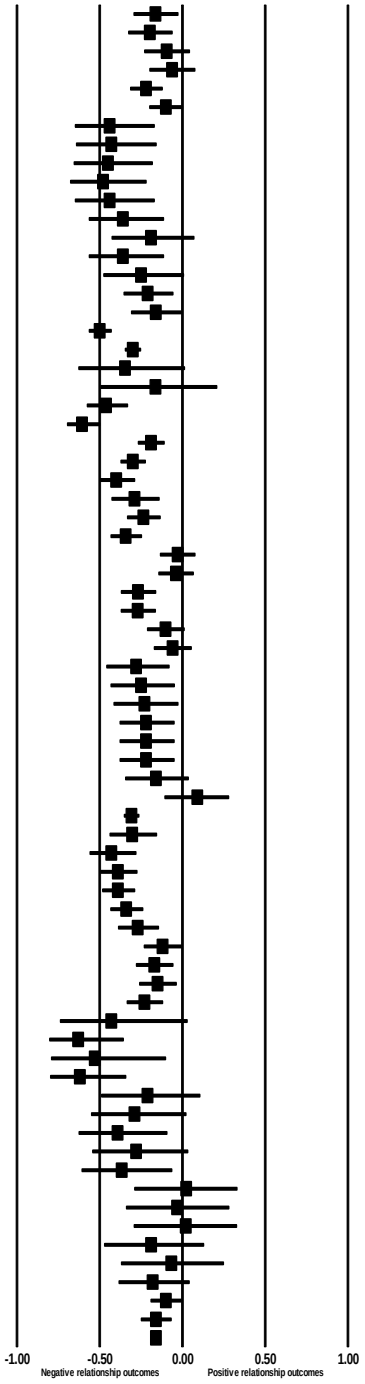
Interpersonal Trauma and Romantic Relationships

Study name	Subgroup within study	Correlation	Lower limit	Upper limit	Z-Value	p-Value
Allen et al 2010	Confidence -H	-0.330	-0.411	-0.243	-7.117	0.000
Allen et al 2010	Dedication - H	-0.180	-0.270	-0.087	-3.778	0.000
Allen et al 2010	Marital Satisfaction - H	-0.390	-0.467	-0.307	-8.549	0.000
Allen et al 2010	Satisfaction w/ sacrifice - H	-0.120	-0.212	-0.026	-2.503	0.012
Allen et al 2018	effortful avoidance - H	-0.310	-0.382	-0.234	-7.633	0.000
Allen et al 2018	Effortful avoidance - W	-0.320	-0.392	-0.244	-7.897	0.000
Allen et al 2018	Hyperarousal - H	-0.310	-0.382	-0.234	-7.633	0.000
Allen et al 2018	Hyperarousal - W	-0.250	-0.325	-0.171	-6.082	0.000
Allen et al 2018	Numbing - H	-0.479	-0.540	-0.413	-12.422	0.000
Allen et al 2018	Numbing - W	-0.326	-0.397	-0.251	-8.057	0.000
Allen et al 2018	reexperiencing - H	-0.320	-0.392	-0.244	-7.897	0.000
Allen et al 2018	reexperiencing - W	-0.260	-0.335	-0.182	-6.337	0.000
Bakhurst et al 2017	CSI/PCL-C All male	-0.400	-0.661	-0.053	-2.242	0.025
Balderrama-Durbin et al 2017	PTSD*Rx distress	-0.290	-0.484	-0.069	-2.551	0.011
Banford Witting et al 2018	female physical abuse* Rx neg comm	-0.220	-0.249	-0.190	-14.078	0.000
Banford Witting et al 2018	Female sexual abuse*Rx neg comm	-0.130	-0.160	-0.099	-8.229	0.000
Banford Witting et al 2018	male physical abuse*Rx neg comm	-0.130	-0.160	-0.099	-8.229	0.000
Banford Witting et al 2018	Male sexual abuse*Rx neg comm	-0.090	-0.121	-0.059	-5.680	0.000
Bell 2009	CEA*commitment	0.029	-0.025	0.083	1.043	0.297
Bell 2009	CPA*commitment	0.037	-0.017	0.091	1.332	0.183
Bergmann et al. 2014	SM PTSD* SM Sat	-0.310	-0.380	-0.236	-7.871	0.000
Bergstrom 2013	Partner PTSD* Sat	-0.380	-0.815	0.328	-1.058	0.290
Bergstrom 2013	SM PTSD* SM Sat	-0.630	-0.902	-0.001	-1.962	0.050
Betthauser 2016	CSI-4*Avoidace	-0.100	-0.331	0.142	-0.809	0.419
Betthauser 2016	CSI-4*Hyperarousal	-0.120	-0.348	0.122	-0.972	0.331
Betthauser 2016	CSI-4*Re-experiecing	-0.050	-0.285	0.191	-0.403	0.687
Betthauser 2016	CSI-4*Total Symptoms	-0.100	-0.331	0.142	-0.809	0.419
Betthauser 2016	KMSS*Avoidance	-0.300	-0.502	-0.066	-2.495	0.013
Betthauser 2016	KMSS*Hyperarousal	-0.130	-0.357	0.112	-1.054	0.292
Betthauser 2016	KMSS*Re-Experiencing	-0.080	-0.312	0.162	-0.646	0.518
Betthauser 2016	KMSS*Total symptoms	-0.200	-0.418	0.040	-1.634	0.102
Betthauser 2016	SWMLS*Avoidance	-0.180	-0.401	0.061	-1.467	0.142
Betthauser 2016	SWMLS*Hyperarousal	-0.230	-0.444	0.009	-1.888	0.059
Betthauser 2016	SWMLS*Re-experecing	-0.130	-0.357	0.112	-1.054	0.292
Betthauser 2016	SWMLS*Total Symptoms	-0.200	-0.418	0.040	-1.634	0.102
Bradbury et al 2012	Childhood emotional*Rx sat	-0.120	-0.206	-0.032	-2.666	0.008
Bradbury et al 2012	Childhood physical ab*Rx sat	-0.120	-0.206	-0.032	-2.666	0.008
Bradbury et al 2012	Childhood Physical neg*Rx say	-0.120	-0.206	-0.032	-2.666	0.008
Bradbury et al 2012	Childhood sexual abuse*Rx sat	-0.060	-0.148	0.029	-1.328	0.184
Brown et al. 2012	RDAS*MPSS-SR - Clinical	-0.210	-0.368	-0.041	-2.421	0.015
Brown et al. 2012	RDAS*MPSS-SR - community	-0.250	-0.361	-0.132	-4.079	0.000
Cabrera 2016	PTSD*Rx sat	-0.370	-0.471	-0.259	-6.178	0.000
Caldeira & Woodin 2012	Childhood aggresion exposure*Rx sat1	-0.260	-0.436	-0.065	-2.594	0.009
Caldeira & Woodin 2012	Childhood aggresion exposure*Rx sat2	-0.310	-0.479	-0.119	-3.124	0.002
Campbell & Renshaw 2013	SM anxious arousal*Rx sat	-0.150	-0.276	-0.019	-2.247	0.025
Campbell & Renshaw 2013	SM avoidance*rx sat	-0.230	-0.351	-0.102	-3.481	0.000
Campbell & Renshaw 2013	SM dysphoric arousal*Rx sat	-0.080	-0.209	0.052	-1.192	0.233
Campbell & Renshaw 2013	SM emotional numbing*Rx sat	-0.200	-0.323	-0.071	-3.014	0.003
Campbell & Renshaw 2013	SM PCL-M Total*Rx sat	-0.190	-0.313	-0.060	-2.859	0.004
Campbell & Renshaw 2013	SM reexperiencing*rx sat	-0.200	-0.323	-0.071	-3.014	0.003
Caska-Wallace et al. 2016	PCL*DAS	-0.280	-0.369	-0.186	-5.645	0.000
Creech et al 2016	RDAS*PCL Women	-0.400	-0.480	-0.313	-8.313	0.000
Dagley et al. 2012	FOO sexual abuse*Rx sat	-0.030	-0.173	0.114	-0.406	0.685
Dagley et al. 2012	FOO sexual abuse*Rx stability	-0.600	-0.685	-0.499	-9.377	0.000
Dagley et al. 2012	FOO violence*Rx sat	-0.230	-0.362	-0.089	-3.168	0.002
Dagley et al. 2012	FOO violence*Rx stability	-0.240	-0.371	-0.100	-3.311	0.001
DiMauro & Renshaw 2017	PTSD sx* Positive Comm	-0.380	-0.504	-0.241	-5.076	0.000
DiMauro & Renshaw 2017	PTSD sx*Neg Comm	-0.280	-0.415	-0.132	-3.650	0.000
DiMauro & Renshaw 2017	PTSD sx*Rx sat	-0.100	-0.249	0.054	-1.273	0.203
Fairweather & Kinder	CSA*affectonal expression	0.209	0.008	0.394	2.035	0.042
Fairweather & Kinder	CSA*dyadic cohesion	-0.058	-0.257	0.145	-0.557	0.578
Fairweather & Kinder	CSA*Dyadic consensus	-0.049	-0.248	0.154	-0.470	0.638
Fairweather & Kinder	CSA*Dyadic satisfaction	0.021	-0.181	0.222	0.201	0.840
Fischer et al 2018	CSI-32*PSS partners	-0.350	-0.488	-0.195	-4.277	0.000
Fischer et al 2018	CSI-32*PSS veterans	-0.120	-0.280	0.047	-1.411	0.158
Fredman et al 2017	Couple Functioning*PTSD Male	-0.360	-0.463	-0.247	-5.923	0.000
Fredman et al 2017	Couple Functioning*PTSD Women	-0.370	-0.472	-0.258	-6.105	0.000
Friesen et al. 2009	CSA exposure*ambiguity+conflict	-0.061	-0.137	0.016	-1.549	0.121
Friesen et al. 2009	CSA exposure*love+investment	-0.130	-0.205	-0.053	-3.315	0.001
Georgia, Roddy, Doss 2018	SA* Rx Sat Women	-0.020	-0.094	0.054	-0.528	0.597
Gerwirtz et al 2010	DAS*PCL-M arousal T1	-0.020	-0.158	0.119	-0.281	0.779
Gerwirtz et al 2010	DAS*PCL-M avoidance T1	-0.060	-0.150	0.031	-1.295	0.195
Gerwirtz et al 2010	DAS*PCL-M reexperience T1	-0.080	-0.169	0.011	-1.729	0.084



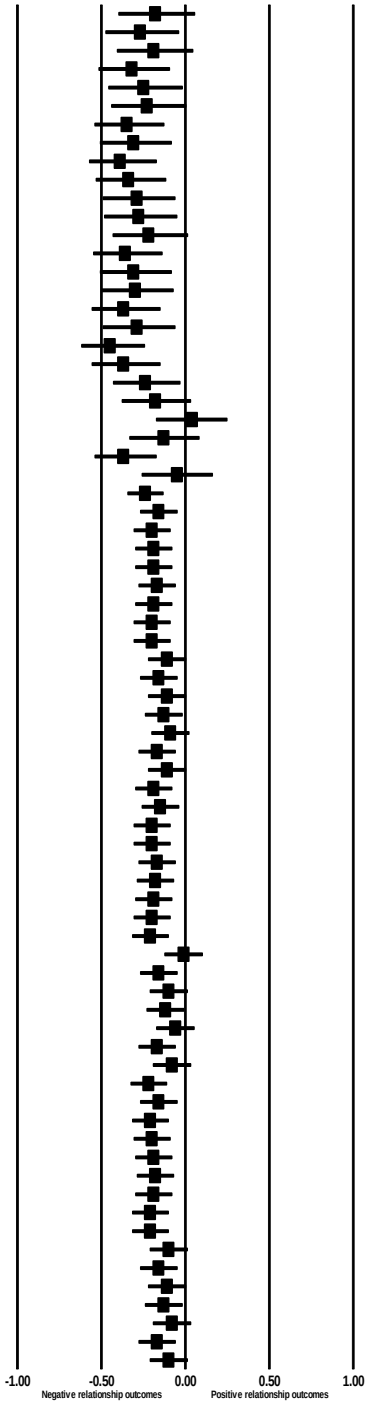
Interpersonal Trauma and Romantic Relationships

Study name	Subgroup within study	Correlation	Lower limit	Upper limit	Z-Value	p-Value
Gorman 2009	RDAS*PCL-M avoid	-0.163	-0.295	-0.025	-2.308	0.021
Gorman 2009	RDAS*PCL-M emotional num	-0.197	-0.327	-0.060	-2.802	0.005
Gorman 2009	RDAS*PCL-M hyper	-0.095	-0.231	0.044	-1.337	0.181
Gorman 2009	RDAS*PCL-M re	-0.062	-0.199	0.077	-0.871	0.384
Griffith 2018	ACE*adult Rx health score	-0.220	-0.315	-0.120	-4.261	0.000
Griffith 2018	ACE*Rx effort score	-0.100	-0.200	0.003	-1.912	0.056
Hamilton et al 2009	fpartner DAS*PPTSD arousal	-0.440	-0.650	-0.168	-3.060	0.002
Hamilton et al 2009	fpartner DAS*PPTSD avoid	-0.430	-0.642	-0.156	-2.980	0.003
Hamilton et al 2009	Fpartner DAS*PPTSD re	-0.450	-0.657	-0.180	-3.141	0.002
Hamilton et al 2009	fpartner DAS*PPTSD total	-0.480	-0.678	-0.217	-3.389	0.001
Hamilton et al 2009	fpartner DAS*TSC-40	-0.440	-0.650	-0.168	-3.060	0.002
Harris et al 2017	PCL-5*CSI - partner	-0.360	-0.566	-0.112	-2.795	0.005
Harris et al 2017	PCL-5*CSI - vet	-0.190	-0.427	0.072	-1.426	0.154
Harris et al 2017	PCL-5*Negative interaction part	-0.360	-0.566	-0.112	-2.795	0.005
Harris et al 2017	PCL-5*Negative interaction vet	-0.250	-0.477	0.009	-1.894	0.058
Hubbard 2017	Satisfaction*PCL	-0.210	-0.355	-0.055	-2.645	0.008
Hubbard 2017	Satisfaction*PTG	-0.161	-0.310	-0.004	-2.015	0.044
Itzhaky et al. 2017	PTSS*Martial adjustment	-0.500	-0.565	-0.429	-11.832	0.000
Karney & Trail 2017	PTSD*Rx sat	-0.300	-0.348	-0.251	-11.394	0.000
Kern 2011	PTSD*Couple Conflict women only	-0.347	-0.629	0.015	-1.881	0.060
Kern 2011	PTSD*Rx Sat women only	-0.163	-0.494	0.210	-0.855	0.393
Klaric et al. 2011	DAS*Ptsd Men	-0.462	-0.577	-0.329	-6.203	0.000
Klaric et al. 2011	DAS*PTSD W	-0.607	-0.697	-0.498	-8.738	0.000
Knobloch et al 2018	At home partners PTSD*Rx sat	-0.190	-0.269	-0.108	-4.519	0.000
Knobloch et al 2018	SM PTSD*Rx sat	-0.300	-0.374	-0.222	-7.272	0.000
Knudson 2015	PCL*RAS	-0.400	-0.502	-0.287	-6.453	0.000
Labella et al. 2018	Childhood abuse/neglect*Rx Competence	-0.290	-0.428	-0.139	-3.681	0.000
Larsen et al 2011	female physical abuse*Rx problems	-0.236	-0.334	-0.133	-4.402	0.000
Larsen et al 2011	female physical abuse*stability	-0.343	-0.434	-0.245	-6.543	0.000
Larsen et al 2011	female sexual abuse*Rx problems	-0.029	-0.135	0.078	-0.531	0.595
Larsen et al 2011	female sexual abuse*stability	-0.039	-0.145	0.068	-0.714	0.475
Larsen et al 2011	Male physical abuse*Rx problems	-0.269	-0.372	-0.160	-4.721	0.000
Larsen et al 2011	Male physical abuse*stability	-0.270	-0.373	-0.161	-4.739	0.000
Larsen et al 2011	Male sexual abuse*Rx problems	-0.102	-0.214	0.012	-1.752	0.080
Larsen et al 2011	male sexual abuse*stability	-0.059	-0.172	0.055	-1.011	0.312
Lassri & Shahar 2012	PTSD*commitment	-0.280	-0.459	-0.079	-2.699	0.007
Lassri & Shahar 2012	PTSD*intimacy	-0.250	-0.434	-0.046	-2.396	0.017
Lassri & Shahar 2012	PTSD*Rx Sat	-0.230	-0.416	-0.025	-2.197	0.028
Leifker et al 2015	PTSD*Caring	-0.220	-0.379	-0.048	-2.501	0.012
Leifker et al 2015	PTSD*Understanding	-0.220	-0.379	-0.048	-2.501	0.012
Leifker et al 2015	PTSD*Validation	-0.220	-0.379	-0.048	-2.501	0.012
Maleck & Papp 2015	female risky family env*CSI	-0.160	-0.346	0.038	-1.589	0.112
Maleck & Papp 2015	Male risky family environemtn*CSI	0.090	-0.108	0.281	0.889	0.374
Maneta et al. 2015	female childhood emo abuse*Rx sat	-0.308	-0.354	-0.261	-12.134	0.000
Maneta et al. 2015	male childhood emo abuse*Rxsat	-0.304	-0.440	-0.154	-3.883	0.000
McGinn et al. 2017	PTSD sx severity*Rx sat	-0.430	-0.561	-0.278	-5.183	0.000
Meis et al 2010	PTSD-checklist*Rx quality	-0.390	-0.496	-0.273	-6.108	0.000
Meis et al 2013	PTSD sx*Rx adjustment	-0.390	-0.485	-0.286	-6.891	0.000
Meis, Erbes, & Polusny 2010	PTSD severity*CSI	-0.340	-0.435	-0.237	-6.184	0.000
Miller, A.B. et al 2013	PTSD severity*Rx sat	-0.270	-0.389	-0.142	-4.060	0.000
Miller, M.W. et al 2013	Spouse PTSD*Neg Comm	-0.120	-0.233	-0.004	-2.032	0.042
Miller, M.W. et al 2013	Spouse PTSD*Pos Comm	-0.170	-0.280	-0.055	-2.893	0.004
Miller, M.W. et al 2013	Veteran PTSD*Neg comm	-0.150	-0.261	-0.035	-2.547	0.011
Miller, M.W. et al 2013	Veteran PTSD*pos comm	-0.230	-0.337	-0.117	-3.947	0.000
Monk & Nelson Goff 2014	Spouse PTSD*Rx Quality	-0.430	-0.740	0.030	-1.840	0.066
Monk & Nelson Goff 2014	Spouse PTSD*Rx Quality control	-0.630	-0.805	-0.355	-3.923	0.000
Monk & Nelson Goff 2014	Veteran PTSD*Rx Quality	-0.530	-0.793	-0.100	-2.361	0.018
Monk & Nelson Goff 2014	Veteran PTSD*Rx Quality control	-0.620	-0.799	-0.340	-3.836	0.000
Monson 2012	Partner*DAS Affective Expression	-0.211	-0.490	0.108	-1.303	0.193
Monson 2012	Partner*DAS cohesion	-0.290	-0.552	0.024	-1.816	0.069
Monson 2012	Partner*DAS consensus	-0.392	-0.627	-0.092	-2.519	0.012
Monson 2012	Partner*DAS satisfaction	-0.280	-0.544	0.035	-1.750	0.080
Monson 2012	Partner*DAS Total	-0.367	-0.609	-0.063	-2.342	0.019
Monson 2012	Patient*DAS Affective Expression	0.023	-0.291	0.332	0.140	0.889
Monson 2012	Patient*DAS Cohesion	-0.032	-0.340	0.282	-0.195	0.846
Monson 2012	Patient*DAS consensus	0.020	-0.293	0.329	0.122	0.903
Monson 2012	Patient*DAS Satisfaction	-0.189	-0.473	0.130	-1.164	0.245
Monson 2012	Patient*DAS total	-0.067	-0.371	0.250	-0.408	0.683
Nelson 2015	CSI*ACE	-0.180	-0.386	0.043	-1.586	0.113
Nguyen et al 2017	Husband abuse Hx*Sat	-0.100	-0.193	-0.006	-2.076	0.038
Nguyen et al 2017	Wife abuse history* Satisfaction	-0.160	-0.251	-0.067	-3.339	0.001
Olson et al 2018	PTSD*Partner Support	-0.160	-0.177	-0.143	-17.799	0.000



Interpersonal Trauma and Romantic Relationships

Study name	Subgroup within study	Correlation	Lower limit	Upper limit	Z-Value	p-Value
Oseland 2012	RDAS cohesion*PCL arousal	-0.180	-0.398	0.057	-1.490	0.136
Oseland 2012	RDAS cohesion*PCL avoid	-0.270	-0.475	-0.037	-2.266	0.023
Oseland 2012	RDAS cohesion*PCL intrusion	-0.190	-0.407	0.047	-1.574	0.115
Oseland 2012	RDAS cohesion*PCL neg cog	-0.320	-0.516	-0.092	-2.715	0.007
Oseland 2012	RDAS cohesion*PCL Total	-0.250	-0.458	-0.016	-2.091	0.037
Oseland 2012	RDAS consensus*PCL arousal	-0.230	-0.441	0.005	-1.917	0.055
Oseland 2012	RDAS consensus*PCL avoid	-0.350	-0.541	-0.125	-2.991	0.003
Oseland 2012	RDAS consensus*PCL intrusion	-0.310	-0.508	-0.081	-2.624	0.009
Oseland 2012	RDAS consensus*PCL neg cog	-0.390	-0.573	-0.171	-3.371	0.001
Oseland 2012	RDAS consensus*PCL total	-0.340	-0.532	-0.114	-2.898	0.004
Oseland 2012	RDAS Satisfaction*PCL arousal	-0.290	-0.491	-0.059	-2.444	0.015
Oseland 2012	RDAS Satisfaction*PCL avoid	-0.280	-0.483	-0.048	-2.355	0.019
Oseland 2012	RDAS Satisfaction*PCL intrusion	-0.220	-0.433	0.016	-1.831	0.067
Oseland 2012	RDAS Satisfaction*PCL neg cog	-0.360	-0.549	-0.137	-3.085	0.002
Oseland 2012	RDAS Satisfaction*PCL Total	-0.310	-0.508	-0.081	-2.624	0.009
Oseland 2012	RDAS total*PCL arousal	-0.300	-0.500	-0.070	-2.534	0.011
Oseland 2012	RDAS total*PCL avoid	-0.370	-0.557	-0.148	-3.179	0.001
Oseland 2012	RDAS total*PCL intrusion	-0.290	-0.491	-0.059	-2.444	0.015
Oseland 2012	RDAS total*PCL neg cog	-0.450	-0.619	-0.240	-3.967	0.000
Oseland 2012	RDAS Total*PCL Total	-0.370	-0.557	-0.148	-3.179	0.001
Owen, Quirk, & Manthos 2012	BT NC*dedication	-0.240	-0.430	-0.030	-2.230	0.026
Owen, Quirk, & Manthos 2012	BT NC*Perceived Respect	-0.180	-0.377	0.033	-1.658	0.097
Owen, Quirk, & Manthos 2012	BT NC*Rx Adjustment	0.040	-0.173	0.250	0.365	0.715
Owen, Quirk, & Manthos 2012	BT*Dedication	-0.130	-0.333	0.084	-1.191	0.234
Owen, Quirk, & Manthos 2012	BT*perceived respect	-0.370	-0.540	-0.172	-3.539	0.000
Owen, Quirk, & Manthos 2012	BT*Rx adjustment	-0.050	-0.259	0.164	-0.456	0.648
Perrier 2010	PTSD frequency*constructive comm F	-0.240	-0.344	-0.130	-4.197	0.000
Perrier 2010	PTSD frequency*constructive comm M	-0.160	-0.269	-0.047	-2.767	0.006
Perrier 2010	PTSD frequency*engagement F	-0.200	-0.307	-0.088	-3.476	0.001
Perrier 2010	PTSD frequency*engagementM	-0.190	-0.297	-0.078	-3.298	0.001
Perrier 2010	PTSD frequency*PAIR intimacy F	-0.190	-0.297	-0.078	-3.298	0.001
Perrier 2010	PTSD frequency*PAIR intimacyM	-0.170	-0.278	-0.057	-2.943	0.003
Perrier 2010	PTSD frequency*Rx satF	-0.190	-0.297	-0.078	-3.298	0.001
Perrier 2010	PTSD frequency*Rx satM	-0.200	-0.307	-0.088	-3.476	0.001
Perrier 2010	PTSD frequency*sternberg commF	-0.200	-0.307	-0.088	-3.476	0.001
Perrier 2010	PTSD frequency*sternberg commM	-0.110	-0.221	0.004	-1.894	0.058
Perrier 2010	PTSD frequency*sternberg intimacyF	-0.160	-0.269	-0.047	-2.767	0.006
Perrier 2010	PTSD frequency*sternberg intimacyM	-0.110	-0.221	0.004	-1.894	0.058
Perrier 2010	PTSD frequency*sternberg passionF	-0.130	-0.240	-0.016	-2.242	0.025
Perrier 2010	PTSD frequency*sternberg passionM	-0.090	-0.202	0.024	-1.547	0.122
Perrier 2010	PTSD frequency*sternberg totalF	-0.170	-0.278	-0.057	-2.943	0.003
Perrier 2010	PTSD frequency*sternberg totalM	-0.110	-0.221	0.004	-1.894	0.058
Perrier 2010	PTSD severity* constructive commF	-0.190	-0.297	-0.078	-3.298	0.001
Perrier 2010	PTSD severity* constructive commM	-0.150	-0.259	-0.037	-2.592	0.010
Perrier 2010	PTSD severity* engagementF	-0.200	-0.307	-0.088	-3.476	0.001
Perrier 2010	PTSD severity* engagementM	-0.200	-0.307	-0.088	-3.476	0.001
Perrier 2010	PTSD severity* PAIR initmacyF	-0.170	-0.278	-0.057	-2.943	0.003
Perrier 2010	PTSD severity* PAIR initmacyM	-0.180	-0.288	-0.068	-3.120	0.002
Perrier 2010	PTSD severity* Rx satF	-0.190	-0.297	-0.078	-3.298	0.001
Perrier 2010	PTSD severity* Rx satM	-0.200	-0.307	-0.088	-3.476	0.001
Perrier 2010	PTSD severity* stern commF	-0.210	-0.316	-0.099	-3.655	0.000
Perrier 2010	PTSD severity* stern commM	-0.010	-0.124	0.104	-0.171	0.864
Perrier 2010	PTSD severity* stern intimacyF	-0.160	-0.269	-0.047	-2.767	0.006
Perrier 2010	PTSD severity* stern intimacyM	-0.100	-0.211	0.014	-1.720	0.085
Perrier 2010	PTSD severity* stern passionF	-0.120	-0.231	-0.006	-2.068	0.039
Perrier 2010	PTSD severity* stern passionM	-0.060	-0.173	0.054	-1.030	0.303
Perrier 2010	PTSD severity* stern totalF	-0.170	-0.278	-0.057	-2.943	0.003
Perrier 2010	PTSD severity* stern totalM	-0.080	-0.192	0.034	-1.375	0.169
Perrier 2010	PTSD total* constructive commF	-0.220	-0.326	-0.109	-3.835	0.000
Perrier 2010	PTSD total* constructive commM	-0.160	-0.269	-0.047	-2.767	0.006
Perrier 2010	PTSD total* engagementF	-0.210	-0.316	-0.099	-3.655	0.000
Perrier 2010	PTSD total* engagementM	-0.200	-0.307	-0.088	-3.476	0.001
Perrier 2010	PTSD total* PAIR initmacyF	-0.190	-0.297	-0.078	-3.298	0.001
Perrier 2010	PTSD total* PAIR initmacyM	-0.180	-0.288	-0.068	-3.120	0.002
Perrier 2010	PTSD total* Rx satF	-0.190	-0.297	-0.078	-3.298	0.001
Perrier 2010	PTSD total* Rx satM	-0.210	-0.316	-0.099	-3.655	0.000
Perrier 2010	PTSD total* stern commF	-0.210	-0.316	-0.099	-3.655	0.000
Perrier 2010	PTSD total* stern commM	-0.100	-0.211	0.014	-1.720	0.085
Perrier 2010	PTSD total* stern intimacyF	-0.160	-0.269	-0.047	-2.767	0.006
Perrier 2010	PTSD total* stern intimacyM	-0.110	-0.221	0.004	-1.894	0.058
Perrier 2010	PTSD total* stern passionF	-0.130	-0.240	-0.016	-2.242	0.025
Perrier 2010	PTSD total* stern passionM	-0.080	-0.192	0.034	-1.375	0.169
Perrier 2010	PTSD total* stern totalF	-0.170	-0.278	-0.057	-2.943	0.003
Perrier 2010	PTSD total* stern totalM	-0.100	-0.211	0.014	-1.720	0.085



Interpersonal Trauma and Romantic Relationships

Study name	Subgroup within study	Correlation	Lower limit	Upper limit	Z-Value	p-Value
Peterson et al 2017	female childhood emo abuse*Rx sat	-0.140	-0.398	0.138	-0.986	0.324
Peterson et al 2017	male childhood emo abuse*Rxsat	0.070	-0.207	0.336	0.491	0.624
Pfaf & Schlarb 2018	Childhood maltreatment*Rx quality	-0.200	-0.295	-0.101	-3.921	0.000
Ponder et al. 2012	PTSD*Rx Sat	-0.120	-0.298	0.066	-1.265	0.206
Renshaw et al 2017	PTSD*Rx Sat	-0.380	-0.567	-0.156	-3.225	0.001
Renshaw et al. 2014	arousal/lack of control*Marital problems	-0.360	-0.528	-0.165	-3.515	0.000
Renshaw et al. 2014	arousal/lack of control*Marital problemsM	-0.440	-0.518	-0.355	-9.108	0.000
Renshaw et al. 2014	emo numbing/withdrawal*Marital problems	-0.520	-0.656	-0.351	-5.376	0.000
Renshaw et al. 2014	emo numbing/withdrawal*Marital problemsM	-0.470	-0.545	-0.387	-9.838	0.000
Renshaw et al. 2014	reexperiencing/avoidance*Marital problems	-0.230	-0.417	-0.024	-2.184	0.029
Renshaw et al. 2014	reexperiencing/avoidance*Marital problemsM	-0.390	-0.473	-0.301	-7.943	0.000
Riggs 2014	Husband PTSD*couple marital adj	-0.540	-0.711	-0.308	-4.142	0.000
Riggs 2014	Husband PTSD*fear of intimacy	-0.670	-0.799	-0.481	-5.558	0.000
Riggs 2014	Wife PTSD*couple marital adj	-0.290	-0.526	-0.013	-2.047	0.041
Riggs 2014	Wife PTSD*fear of intimacy	-0.460	-0.655	-0.208	-3.409	0.001
Riggs et al 2011	Men childhood emo abuse*dyadic adj	-0.110	-0.263	0.048	-1.362	0.173
Riggs et al 2011	Women Childhood emo abuse*dyadic adj	-0.280	-0.419	-0.128	-3.547	0.000
Rodrigues 2014	Rx sat*anxious arousal	-0.170	-0.296	-0.038	-2.523	0.012
Rodrigues 2014	Rx sat*avoidance	-0.200	-0.324	-0.069	-2.980	0.003
Rodrigues 2014	Rx sat*dysphoric arousal	-0.270	-0.389	-0.143	-4.069	0.000
Rodrigues 2014	Rx sat*numbing	-0.380	-0.488	-0.261	-5.880	0.000
Rodrigues 2014	Rx sat*reexperiencing	-0.190	-0.315	-0.059	-2.827	0.005
Ruhlmann et al 2018 a	Husband # of traumas*Attachment Bx	0.180	-0.163	0.484	1.029	0.303
Ruhlmann et al 2018 a	Husband # of traumas*Rx sat	0.180	-0.163	0.484	1.029	0.303
Ruhlmann et al 2018 a	Husband PTSD symptoms*attach bx	-0.260	-0.546	0.080	-1.505	0.132
Ruhlmann et al 2018 a	Husband PTSD symptoms*Rx sat	-0.300	-0.576	0.037	-1.751	0.080
Ruhlmann et al 2018 a	Wife # of traumas*attach bx	-0.060	-0.386	0.279	-0.340	0.734
Ruhlmann et al 2018 a	Wife # of traumas*Rx sat	-0.020	-0.351	0.315	-0.113	0.910
Ruhlmann et al 2018 a	Wife PTSD Symptoms *Rx sat	-0.250	-0.538	0.091	-1.445	0.149
Ruhlmann et al 2018 a	Wife PTSD symptoms*attach bx	-0.100	-0.419	0.241	-0.568	0.570
Ruhlmann et al 2018 b	PTSD sx*confide in partner	0.018	-0.027	0.063	0.780	0.435
Ruhlmann et al 2018 b	PTSD sx*discussing ending it	-0.052	-0.096	-0.008	-2.301	0.021
Ruhlmann et al 2018 b	PTSD sx*Happy Rx	0.089	0.045	0.132	3.977	0.000
Ruhlmann et al 2018 b	PTSD sx*Rx going well	0.052	0.007	0.096	2.280	0.023
Ruhlmann et al 2018 b	PTSD Sx*Rx Insecurity	-0.100	-0.143	-0.056	-4.479	0.000
Ruhlmann et al 2018 b	PTSD sx*Rx turbulence	-0.058	-0.101	-0.014	-2.607	0.009
Seehuus et al 2015	Childhood emotional*Rx companionship	-0.090	-0.184	0.006	-1.836	0.066
Seehuus et al 2015	Childhood emotional*Rx conflict	-0.020	-0.116	0.076	-0.407	0.684
Seehuus et al 2015	Childhood emotional*Rx intimacy	-0.140	-0.233	-0.045	-2.867	0.004
Seehuus et al 2015	Childhood emotional*Rx sat	-0.040	-0.136	0.056	-0.814	0.415
Seehuus et al 2015	Childhood physical ab*Rx companionship	-0.160	-0.252	-0.065	-3.284	0.001
Seehuus et al 2015	Childhood physical ab*Rx conflict	-0.070	-0.165	0.026	-1.427	0.154
Seehuus et al 2015	Childhood physical ab*Rx intimacy	-0.170	-0.262	-0.075	-3.493	0.000
Seehuus et al 2015	Childhood physical ab*Rx sat	-0.120	-0.214	-0.024	-2.453	0.014
Seehuus et al 2015	Childhood sexual abuse*Rx companionship	-0.080	-0.175	0.016	-1.631	0.103
Seehuus et al 2015	Childhood sexual abuse*Rx conflict	-0.050	-0.145	0.046	-1.018	0.309
Seehuus et al 2015	Childhood sexual abuse*Rx intimacy	-0.070	-0.165	0.026	-1.427	0.154
Seehuus et al 2015	Childhood sexual abuse*Rx sat	-0.020	-0.116	0.076	-0.407	0.684
Segundo 2013	PTSD*RAS	-0.340	-0.688	0.135	-1.416	0.157
Sullivan et al 2016	PCL-C*Adverse Rx Functioning	-0.430	-0.503	-0.351	-9.702	0.000
Sullivan et al 2017	Sex Orientation Discrimintation*Rx comt	-0.080	-0.291	0.138	-0.717	0.473
Sullivan et al 2017	Sex Orientation Discrimintation*Rx sat	-0.170	-0.372	0.047	-1.535	0.125
Sullivan et al 2017	trauma ex*Rx Commitment	0.110	-0.108	0.318	0.988	0.323
Sullivan et al 2017	Trauma ex*Rx Sat	0.190	-0.027	0.390	1.720	0.085
Tsai et al 2012	PCL-M*Partner Satisfaction	-0.350	-0.478	-0.208	-4.637	0.000
Vaillancourt-Morel et al 2019	Men childhood maltreatment*Rx sat	-0.200	-0.297	-0.099	-3.857	0.000
Vaillancourt-Morel et al 2019	Women childhood maltreatment*Rx sat	-0.120	-0.220	-0.018	-2.294	0.022
Vest et al 2017	PTSD*Rx Sat	-0.280	-0.391	-0.161	-4.503	0.000
Vest et al 2018	Combat exposure*Rx sat	0.019	-0.121	0.158	0.265	0.791
Vest et al 2018	Traumatic event*Rx sat	-0.120	-0.255	0.020	-1.684	0.092
Weinberg et al 2018	PTSD*Rx sat - spouse	-0.490	-0.623	-0.329	-5.414	0.000
Weinberg et al 2018	PTSD*Rx sat - terror attack	-0.500	-0.631	-0.341	-5.548	0.000
Yang 2014	Emo numbing*Consructive comm	-0.330	-0.476	-0.166	-3.833	0.000
Yang 2014	Emo numbing*DAS	-0.350	-0.494	-0.188	-4.086	0.000
Yang 2014	Emo numbing*intimacy	-0.370	-0.511	-0.210	-4.343	0.000
Zamir & Lavee 2014	Chidlhood physical ab*Rx sat	-0.072	-0.166	0.023	-1.482	0.138
Zamir & Lavee 2014	childhood emo*marital quality	-0.108	-0.201	-0.013	-2.227	0.026
Zamir & Lavee 2014	childhood emo*rx sat	-0.125	-0.218	-0.030	-2.581	0.010
Zamir & Lavee 2014	Childhood physical ab*Marital quality	-0.114	-0.207	-0.019	-2.360	0.018
Zamir & Lavee 2014	Childhood sexual ab*Marital Quality	-0.067	-0.161	0.028	-1.378	0.168
Zamir & Lavee 2014	childhood sexual ab*Rx sat	-0.071	-0.165	0.024	-1.461	0.144
Zawilinski 2016	PCL*RAS	-0.110	-0.177	-0.042	-3.159	0.002

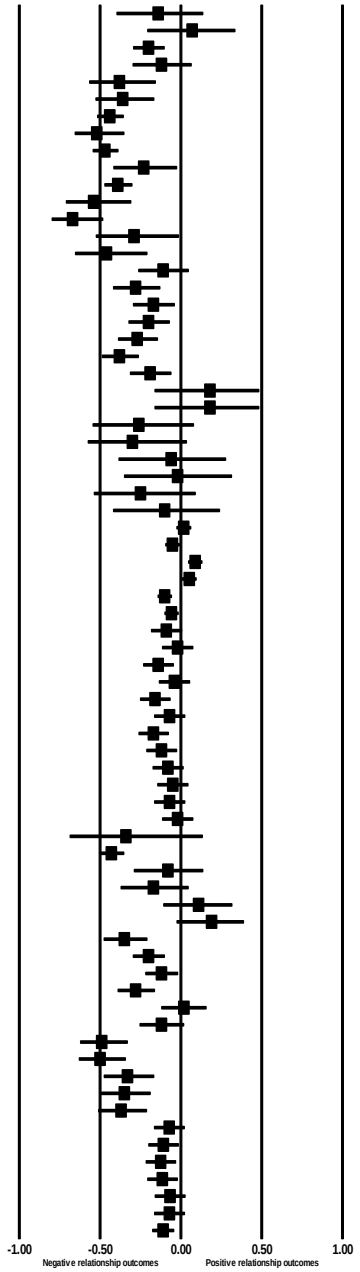


Table 7: Overall Output Table by subgroup

		Effect size and 95% interval				
Model	**Number of Subgroups**	**Point Estimate**	**Lower limit**	**Upper limit**	**Z-value**	**P-value**
Random	291	-.202	-218	-.186	-24.138	.000

By article

		Effect size and 95% interval				
Model	**Number of Studies**	**Point Estimate**	**Lower limit**	**Upper limit**	**Z-value**	**P-value**
Random	77	-.240	-.267	-.212	-16.621	.000

Table 8: Funnel plot

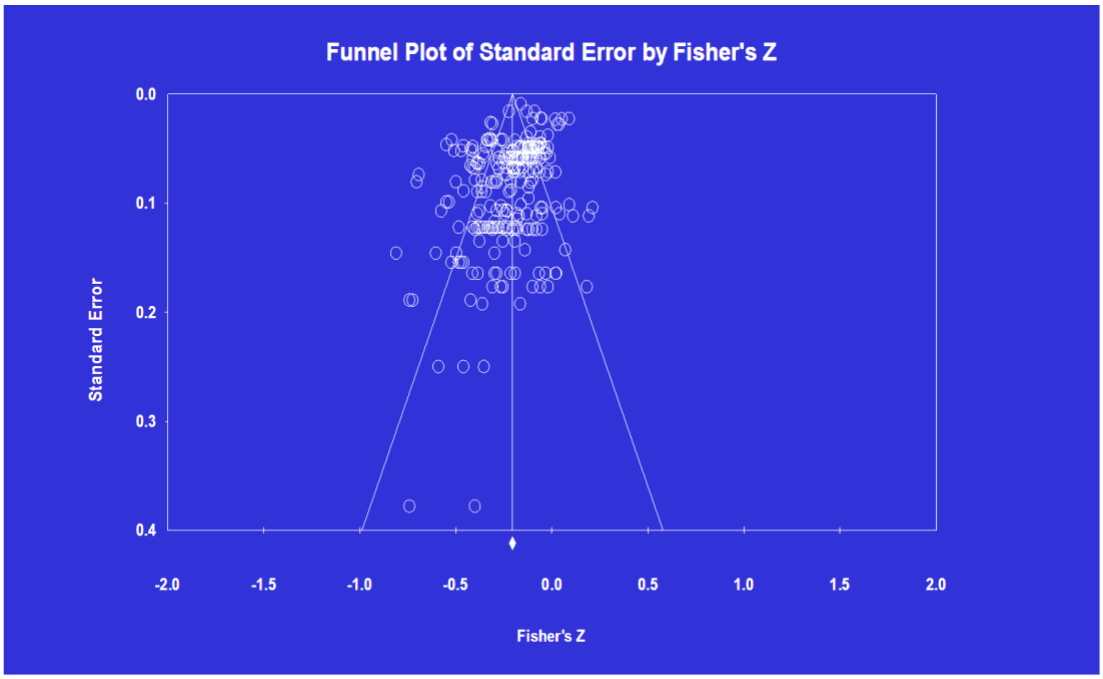


Table 9: Trim and Fill to the left and right of the mean

Duval and Tweedie's trim and fill

		Fixed Effects			Random Effects			Q Value
	Studies Trimmed	Point Estimate	Lower Limit	Upper Limit	Point Estimate	Lower Limit	Upper Limit	
Observed values		-0.16376	-0.16961	-0.15789	-0.20250	-0.21843	-0.18645	1771.76627
Adjusted values	0	-0.16376	-0.16961	-0.15789	-0.20250	-0.21843	-0.18645	1771.76627

Duval and Tweedie's trim and fill

		Fixed Effects			Random Effects			Q Value
	Studies Trimmed	Point Estimate	Lower Limit	Upper Limit	Point Estimate	Lower Limit	Upper Limit	
Observed values		-0.16376	-0.16961	-0.15789	-0.20250	-0.21843	-0.18645	1771.76627
Adjusted values	53	-0.14316	-0.14885	-0.13746	-0.15860	-0.17560	-0.14151	2522.70644

Table 10: Articles and their moderators

Study Name	**Relation-ship Measure**	**Trauma Measure**	**Gender**	**Military/ Civilian**	**Age of Trauma ***	**Dissert ation/ Article**	**US/ Intern-ational**
Allen et al 2010	KMS	PCL	Male	Military	A	Article	US
Allen et al 2018	KMS	PCL	Male & Female	Military/ Civilian	A	Article	US
Bakhurst et al 2017	CSI	PCL	Male	Military	A	Article	I
Balderrama-Durbin et al 2017	MSI-B	PCL	Mixed	Military	A	Article	US
Banford Witting et al 2018	Marital Instability	CTS	Male & Female	Civilian	C	Article	US
Bell 2009	Not Specified	Not specified	Mixed	Civilian	C	Dissert ation	US
Bergmann et al. 2014	KMS	PCL	Mixed	Military/ Civilian	A	Article	US
Bergstrom 2013	EMS	PCL	Mixed	Military/ Civilian	A	Dissert ation	US

Betthauser 2016	CSI/KMS/ SWMLS	PCL	Mixed	Military	A	Dissert ation	US
Bradbury et al 2012	RAS	CTQ	Mixed	Civilian	C	Article	US
Brown et al. 2012	RDAS	MPSS	Mixed	Civilian	A	Article	US
Cabrera 2016	RDAS	PCL	Female	Civilian	A	Dissert ation	US
Caldeira & Woodin 2012	DAS	FAO	Mixed	Civilian	C	Article	I
Campbell & Renshaw 2013	RAS	PCL	Mixed	Military	A	Article	US
Caska-Wallace et al. 2016	DAS	PCL	Female	Military	A	Article	US
Creech et al 2016	CSI	PCL	Female	Military	A	Article	US
Dagley et al. 2012	Not Specified	Not Specified	Mixed	Civilian	C	Article	US
DiMauro & Renshaw 2017	CSI	PCL	Female	Civilian	Not Stated	Dissert ation	US
Fairweather & Kinder 2013	DAS	CSA	Female	Civilian	C	Article	US
Fischer et al 2018	CSI	PCL	Mixed	Military/ Civilian	A	Article	US
Fredman et al 2017	QMI	PCL	Male & Female	Civilian	Not Stated	Article	US
Friesen et al. 2009	IRS	CSA	Female	Civilian	C	Article	I
Georgia, Roddy, Doss 2018	CSI	Not specified	Female	Civilian	Not Stated	Article	US
Gerwirtz et al 2010	DAS	PCL	Male	Military	A	Article	US
Gorman 2009	RDAS	PCL	Mixed	Military	A	Dissert ation	US
Griffith 2018	RAS	ACES	Mixed	Civilian	C	Dissert ation	US
Hamilton et al 2009	DAS	TSC/ PPTSD-R	Female	Civilian	Not Stated	Article	US
Harris et al 2017	CSI/Not Specified	PCL	Mixed	Military/ Civilian	Not Stated	Article	US

Hubbard 2017	RAS	PCL/PTGI	Mixed	Military	A	Dissertation	US
Itzhaky et al. 2017	DAS	PTSD-I	Male	Military	A	Article	I
Karney & Trail 2017	FFS	PCL	Mixed	Military	A	Article	US
Kern 2011	KMS	PCL	Female	Civilian	Not Stated	Dissertation	US
Klaric et al. 2011	DAS	HTQ	Male & Female	Military/ Civilian	A	Article	I
Knobloch et al 2018	CSI	CES	Mixed	Military/ Civilian	A	Article	US
Knudson 2015	RAS	PCL	Mixed	Not Stated	Not Stated	Dissertation	US
Labella et al. 2018	RAS	Not Specified	Mixed	Civilian	C	Article	US
Larsen et al 2011	Not Specified	Not Specified	Male & Female	Civilian	C	Article	US
Lassri & Shahar 2012	DAS	CTQ	Mixed	Civilian	C	Article	US
Leifker et al 2015	Not Specified	PCL	Mixed	Civilian	Not Stated	Article	US
Maleck & Papp 2015	CSI	RFQ	Male & Female	Civilian	C	Article	US
Maneta et al. 2015	SMAT	CTQ	Male & Female	Civilian	C	Article	US
McGinn et al. 2017	QMI	PCL	Mixed	Military	A	Article	US
Meis et al 2010	DAS	PCL	Mixed	Military	A	Article	US
Meis et al 2013	CSI	PCL	Mixed	Military	A	Article	US
Meis, Erbes, & Polusny 2010	DAS	PCL	Mixed	Military	A	Article	US
Miller, A.B. et al 2013	RAS	RFQ	Mixed	Military	C	Article	US
Miller, M.W. et al 2013	RMICS	TLEQ	Mixed	Military/ Civilian	Not Stated	Article	US
Monk & Nelson Goff 2014	DAS	TSC	Mixed	Military/ Civilian	A	Article	US
Monson 2012	DAS	PCL	Mixed	Not Stated	Not Stated	Article	US
Nelson 2015	CSI	ACES	Male	Civilian	C	Dissertation	US

Nguyen et al 2017	Not Specified	Not specified	Male & Female	Civilian	C	Article	US
Olson et al 2018	Not Specified	Primary Care-PTSD	Mixed	Military	A	Article	US
Oseland 2012	RDAS	PCL	Mixed	Military	C	Dissertation	US
Owen, Quirk, & Manthos 2012	DAS	BBTS	Mixed	Civilian	C	Article	US
Perrier 2010	Not specified/ PAIR/ Sternberg	MPSS	Male & Female	Civilian	C	Dissertation	I
Peterson et al 2017	RAS	CTQ	Male & Female	Civilian	C	Article	US
Pfaf & Schlarb 2018	RAS	ACES	Female	Civilian	C	Article	I
Ponder et al. 2012	RAS	PCL	Mixed	Military	A	Article	US
Renshaw et al 2017	DAS	PCL	Male	Military	A	Article	US
Renshaw et al. 2014	MPI	M-PTSD	Male & Female	Military	A	Article	US
Riggs 2014	DAS	PCL	Male & Female	Military/ Civilian	A	Article	US
Riggs et al 2011	DAS	CTQ	Male & Female	Civilian	C	Article	US
Rodrigues 2014	RAS	PCL	Mixed	Military	A	Dissertation	US
Ruhlmann et al 2018 a	RDAS	SLESQ PCL	Male & Female	Military/ Civilian	Not Stated	Article	US
Ruhlmann et al 2018 b	DAS	PCL	Mixed	Military	A	Article	US
Seehuus et al 2015	NRI-BSV	CTQ	Female	Civilian	C	Article	US
Segundo 2013	RAS	PCL	Male	Military	A	Dissertation	US
Sullivan et al 2016	AIRF	PCL	Mixed	Military	A	Article	US
Sullivan et al 2017	RAS	Comnputerized Diagnostic Interview	Mixed	Civilian	Not Stated	Article	US

		Schedule -IV					
Tsai et al 2012	QMI	PCL	Mixed	Military	A	Article	US
Vaillancourt -Morel et al 2019	CSI	CTQ	Male & Female	Military	C	Article	I
Vest et al 2017	MAT	PCL	Male	Military	A	Article	US
Vest et al 2018	MAT	TEQ/CEQ	Mixed	Military	A	Article	US
Weinberg et al 2018	MQS-I	PCL	Mixed	Military/ Civilian	A	Article	I
Yang 2014	DAS	PCL	Mixed	Military	A	Dissertation	US
Zamir & Lavee 2014	MQS-I	CTQ	Female	Civilian	C	Article	I
Zawilinski 2016	RAS	PCL	Mixed	Military	A	Dissertation	US

*Age of Trauma – A= Adulthood and C=Childhood
AIRF – Adverse Intimate Relationship Functioning
CSI – Couple Satisfaction Survey
DAS – Dyadic Adjustment Scale
EMS – Marital Satisfaction Survey
FFS – Florida Formation Survey
IRS – Intimate Relationship Scale
KMS - Kansas Marital Satisfaction Survey
MAT – Marital Adjustment Test
MPI – Marital Problems Index
MQS-I – Marital Quality Scale
MSI-B – Marital Satisfaction Inventory – Brief form
NRI-BSV – Network of Relationship Inventory – Behavioral Systems Version
PAIR – The Personal Assessment of Intimacy in Relationships
QMI – Quality of Marriage Index
RAS – Relationship Assessment Scale
RDAS – Revised Dyadic Adjustment Scale
RMICS- Rapid Marital Interaction Coding System
SMAT – Locke-Wallace Marital Adjustment Test – Short Form
Sternberg – The Sternberg Triangular Love Scale
SWMLS- Satisfaction With Marital Life Scale

ACES – Adverse Childhood Experiences Scale
BBTS – Brief Betrayal Trauma Scale
CES – Combat Exposures Scale from the Deployment Risk and Resilience Inventory – 2

CES – Combat Exposure Scale
CSA – Childhood Sexual Abuse
CTQ – Childhood Trauma Questionnaire – Short Form
CTS – Conflict Tactic Scales (Adjusted)
FAO – Family of Origin Relationship Scale
HTQ – Harvard Trauma Questionnaire (Bosnia-Herzegovina version)
M-PTSD – Mississippi Scale for Combat Related PTSD
MPSS – Modified PTSD Symptom Scale – Self-Report
PCL – PTSD Checklist
PPTSD-R – Purdue Post-Traumatic Stress Disorder Scale - Revised
PTGI – Post-Traumatic Growth Inventory
PTSD-I – PTSD Inventory
RFQ – Risky Family Questionnaire
SLESQ – The Stressful Life Events Screening Questionnaire
TEQ – Traumatic Events Questionnaire
TLEQ – Traumatic Life Events Questionnaire
TSC – Trauma Symptoms Checklist

Table 11: Romantic Measures Output

Measure	**# of sub-groups**	**Point Estimate**	**Lower Limit**	**Upper Limit**	**Z-value**	**P-value**	**Qb**	**Df (Q)**	**Q p-value**
AIRF	1	-.430	-.503	.-351	-9.702	.000			
CSI	22	-.206	-.268	-.143	-6.259	.000			
DAS	59	-.245	-.295	-.194	-9.080	.000			
EMS	2	-.516	-.799	-.047	-2.136	.033			
FFS	1	-.300	-.348	-.251	-11.394	.000			
IRS	2	-.096	-.163	-.028	-2.753	.006			
KMS	19	-.290	-.333	-.246	-12.313	.000			
Marital	4	-.143	-.197	-.088	-5.089	.000			
MAT	3	-.131	-.300	.045	-1.458	.145			
MPI	6	-.418	-.475	-.358	-12.250	.000			

MQS-I	8	-.175	-.263	-.085	-3.763	.000			
MSI-B	1	-.290	-.484	-.069	-2.551	.011			
Not specified	34	-.182	-.221	-.142	-8.916	.000			
NRI-BSV	12	-.086	-.115	-.057	-5.731	.000			
PAIR	6	-.180	-.225	-.135	-7.644	.000			
QMI	4	-.373	-.432	-.311	-10.952	.000			
RAS	38	-.174	-.203	-.144	-11.367	.000			
RDAS	35	-.242	-.283	-.200	-10.964	.000			
RMCIS	4	-.168	-.224	-.111	-5.709	.000			
SMAT	2	-.308	-.351	-.263	-12.740	.000			
Sternberg	24	-.127	-.150	-.104	-10.758	.000			
SWMLS	4	-.185	-.299	-.066	-3.022	.003			
Total Between							279.794	21	.000
Overall	291	-.190	-.200	-.180	-35.892	.000			

Figure 1: Relationship Measure Forrest Plot

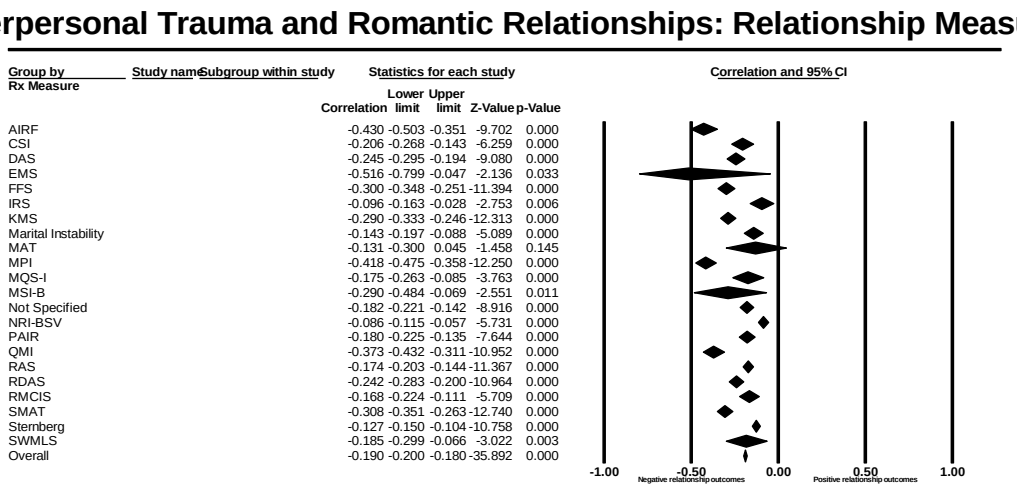


Table 12: Trauma measure outputs

Measure	**# of sub groups**	**Point Estimate**	**Lower Limit**	**Upper Limit**	**Z-value**	**P-value**	**Qb**	**Df (Q)**	**Q p-value**
ACES	4	-.174	-.231	.117	-5.837	.000			
BBTS	6	-.158	-.272	-.039	-2.598	.009			
CEQ	1	.019	-.121	.158	.265	.791			
CES	2	-.246	-.350	-.135	-4.283	.000			
Comput-erized	4	.013	-.151	.175	.152	.879			
CSA	6	-.039	-.121	.044	-.915	.360			
CTQ	33	-.122	-.154	-.090	-7.461	.000			
CTS	4	-.143	-.197	-.088	-5.089	.000			
FAO	2	-.285	-.410	-.150	-4.043	.000			
HTQ	2	-.538	-.665	-.381	-5.893	.000			
MPSS	50	-.161	-.177	-.145	-19.602	.000			

M-PTSD	6	-.418	-.475	-.358	-12.250	.000			
Not Specified	18	-.165	-.238	-.090	-4.269	.000			
PCL	130	-.254	-.284	-.224	-15.837	.000			
PPTSD-R	4	-.450	-.562	-.322	-6.286	.000			
Primary	1	-.160	-.177	-.143	-17.799	.000			
PTGI	1	.161	.004	.310	2.015	.044			
PTSD-I	1	-.500	-.565	-.429	-11.832	.000			
RiskyFamily	2	-.036	-.275	.208	-.283	.777			
SLESQ	4	.071	-.102	.239	.803	.422			
TEQ	1	-.120	-.255	.020	-1.684	.092			
TLEQ	4	-.168	-.224	-.111	-5.709	.000			
TSC	5	-.535	-.647	-.402	-6.814	.000			
Total Between							256.221	22	.000
Overall	291	-.176	-.185	-.166	-36.371	.000			

Figure 2: Trauma Measure Forrest Plot

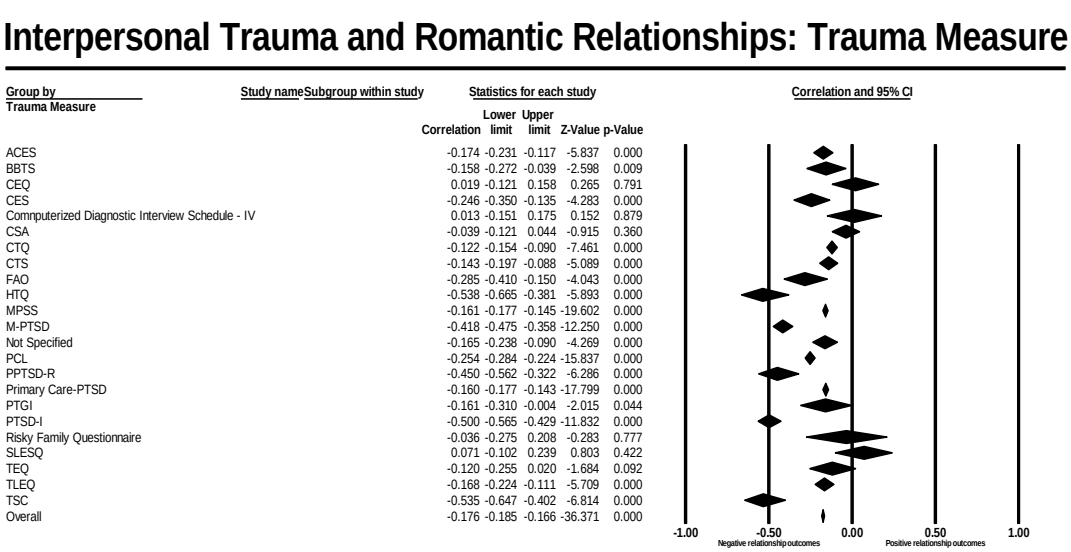


Table 13: Military vs. Civilian Outputs

Mixed Effects	# of sub groups	Point Estimate	Lower Limit	Upper Limit	z	p	Qbetween	Df(Q)	p
Civilian	164	-.170	-.187	-.152	-18.691	.000			
Military	116	-.251	-.280	-.220	-15.660	.000			
Total Between							20.451	1	.000
Overall	280	-.189	-.204	-.174	-23.962	.000			

Figure 3: Military Vs. Civilian Forest Plot

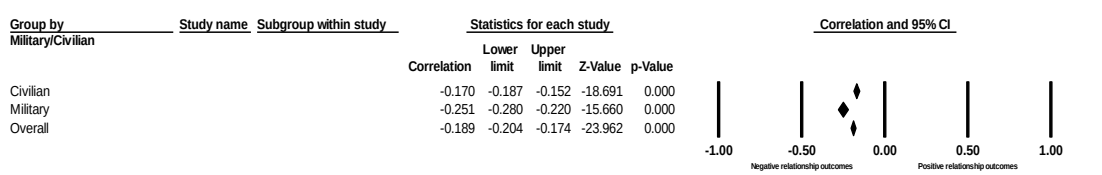


Table 14: Gender Outputs

Mixed Effects	# of sub-groups	Point Estimate	Lower Limit	Upper Limit	z	p	Qbetween	Df(Q)	p
Female	90	-.185	-.208	-.161	-15.021	.000			
Male	64	-.207	-.242	-.171	-11.087	.000			
Total Between							1.028	1	.311
Overall	154	-.191	-.211	-.172	-18.642	.000			

Figure 4: Gender Forest Plot

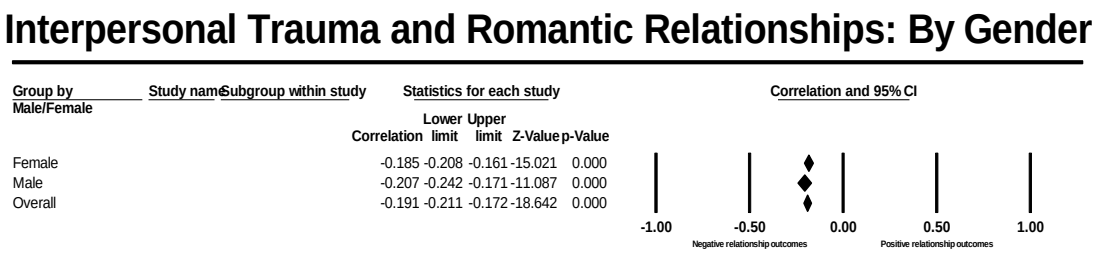


Table 15: Age of Trauma Outputs

Mixed Effects	# of sub groups	Point Esti-mate	Lower Limit	Upper Limit	z	p	Q-bet-ween	Df (Q)	p
Adulthood	101	-.225	-.261	-.187	-11.560	.000			
Childhood	143	-.112	-.141	-.083	-7.568	.000			
Total Between							21.764	1	.00
Overall	244	-.154	-.176	-.131	-13.005	.000			

Figure 5: Age of Trauma Forest Plot

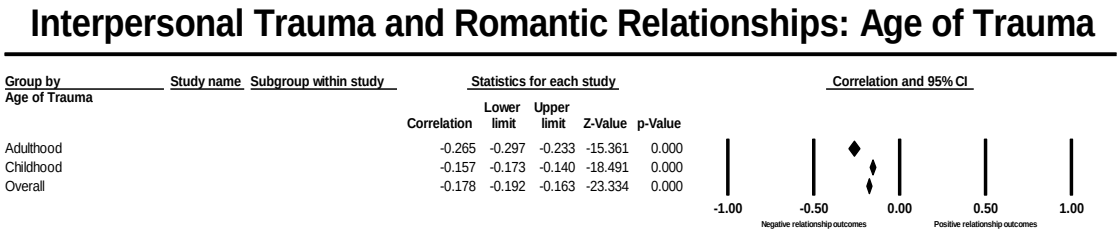


Table 16: Dissertations vs. Article Outputs

Mixed Effects	# of sub groups	Point Esti-mate	Lower Limit	Upper Limit	z	p	Qbetween	Df(Q)	p
Article	181	-.210	-.231	-.188	-18.593	.000			
Disse-rtation	110	-.186	-.206	-.166	-17.574	.000			
Total Between							2.404	1	.121
Overall	291	-.197	-.212	-.182	-25.538	.000			

Figure 6: Dissertation Forest Plot

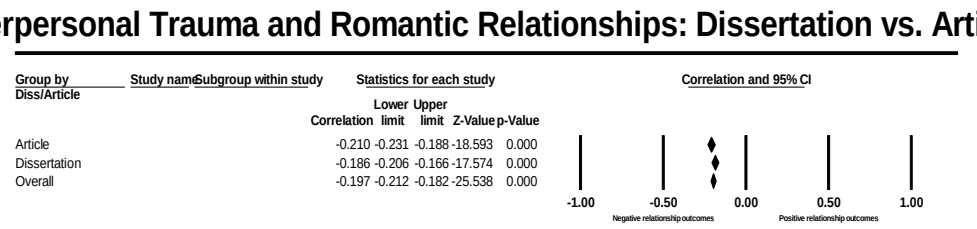


Table 17: International vs. United States

Mixed Effects	# of sub groups	Point Estimate	Lower Limit	Upper Limit	z	p	Qbet-ween	Df(Q)	p
International	67	-.178	-.203	-.153	-13.745	.000			
US	224	-.211	-.230	-.191	-20.678	.000			
Total Between							4.067	1	.044

Overall	291	-.199	-.214	-.183	-24.747	.000			

Figure 7: International vs. United States Forest Plot

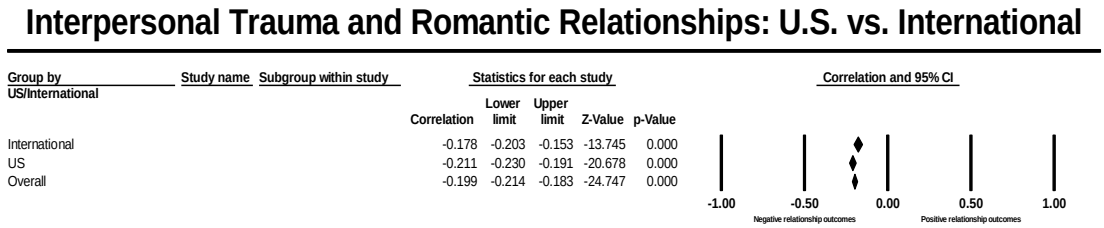


Table 18: Year of Publication

Mixed Effects	**# of sub groups**	**Point Estimate**	**Lower Limit**	**Upper Limit**	**z**	**p**	**Qbetw-een**	**Df (Q)**	**p**
2009	13	-.163	-.240	-.084	-4.009	.000			
2010	57	-.169	-.189	-.148	-15.888	.000			
2011	14	-.240	-.330	-.146	-4.911	.000			
2012	53	-.238	-.277	-.198	-11.359	.000			
2013	20	-.171	-.225	-.116	-5.983	.000			
2014	29	-.313	-.374	-.250	-9.284	.000			
2015	21	-.140	-.193	-.086	-5.077	.000			
2016	17	-.222	-.296	-.145	-5.539	.000			
2017	24	-.232	-.297	-.166	-6.716	.000			
2018	41	-.182	-.221	-.143	-8.972	.000			
2019	2	-.160	-.238	-.081	-3.936	.000			
Total Betw-een							32.250	10	.000
Overall	291	-.188	-.202	-.175	-26.626	.000			

Figure 8: Year Forest Plot