Published in final edited form as:

Am J Fam Ther. 2018 ; 46(2): 153–167. doi:10.1080/01926187.2018.1461031.

Trauma and Health Symptoms in a Community Sample: Examining the Influences of Gender and Daily Stress

Kristin E. Silver, M.A.², Meera Kumari, M. D.¹, Danette Conklin, Ph.D.¹, and Gunnur Karakurt, Ph.D.¹

¹Case Western Reserve University

²Department of Psychology, The University of Akron, Akron, OH, 44325, USA

Abstract

Although there is a rich body of literature on trauma and health, limited research has investigated the variables of gender, trauma symptoms, physical health, mental health, and daily stress together in a community sample. Considering the deleterious effects of trauma on health, our overarching inquiry was whether trauma symptoms can predict overall mental and physical health with attention to gender and daily stress as potential moderators. Participants ($n = 103$; 50.5% women) completed self-report measures of trauma symptoms, mental health, physical health, and daily stress, along with demographic information. Trauma symptoms predicted 25.2% of the variance in general health symptoms. Gender significantly added to the variance accounted for, but daily stress was not significant in the model. Trauma symptoms predicted 37.1% of the variance in mental health symptoms. Daily stress significantly added to the model, but gender did not. Results are interpreted through the integration of family stress theory and feminist frameworks, adding to the literature by further illuminating the relationships between gender, daily stress, health symptoms, and trauma in a community sample.

Psychological stress—especially when chronic—is widespread and known to adversely affect the immune system and susceptibility to illness, especially with advancing age and disease (Segerstrom & Miller, 2004). The mental health symptoms of depression, anxiety, and post-traumatic stress have been linked to various stress-related health problems (e.g., Dufton, Dunn & Compas, 2009; Knol et al., 2006; Pacella, Hruska, & Delahanty, 2012). An understanding of risk factors, protective factors, and the relationships between types of stressors and medical variables has important clinical implications and can inform the work of family therapists.

There is also much evidence demonstrating that women are more vulnerable to depression and trauma-related illnesses than men (e.g., Kessler, 2003; Mitchell et al., 2012). Major depression is the leading cause of disability for women worldwide (Marcus, Taghi Yasamy, van Ommeren, & Chisholm, 2012). The lifetime prevalence for major depressive disorders among women is 21.3%, compared to only 12.7% for men. Though underlying causal mechanisms have not been established, it is believed that a combination of biological

vulnerabilities and stress-related environmental conditions produce this disparity (Hyde, Mezulis & Abramson, 2008). Environmental and social factors include stress from balancing work and family, restrictive gender roles and expectations, and increased rates of sexual violence and poverty (e.g. Hyde et al 2008).

Although there is a rich body of literature on trauma, health, and stress, there is not extant research on daily stress that has investigated the variables of gender, comprehensive trauma symptoms, and mental and physical health in a non-clinical community sample. Many studies have investigated trauma, health, and stress, but this has primarily been in the context of war (Korinek, Loebach, & Teerawichitchainan, 2017), veteran samples (Ziobrowski et al, 2017), natural disasters (Rataj, Kunzweiler, & Garthus-Niegel, 2016), and refugee samples (Berthold et al, 2014), and among people who have a diagnosis of PTSD (Sareen et al, 2007).

The current study seeks to further investigate the relationships among mental and physical health and trauma symptoms among adults in a community sample, with attention to gender and daily stress as potential moderators. Considering the deleterious effects of trauma on health, our overarching inquiry was whether trauma symptoms can predict overall mental and physical health. The family stress theory and feminist frameworks provided lenses to explore the role of gender and stress in health and functioning.

Trauma and Health

Trauma is an emotional and physical response to a highly upsetting or dangerous event such as an accident, sexual assault, or natural disaster. A situation can be considered “traumatic” when it exceeds a person’s resources or ability to cope (van der Kolk, 2014). A notable component of trauma is the person’s perception of the event as posing a threat to life, bodily integrity, or sanity. It is common for a person who has experienced trauma to have a sense of being overwhelmed, terrified, isolated, and/or out of control (Courtois, 2014).

Responses to trauma fall into multiple symptom clusters. A person may experience anxiety, which is a general sense of apprehension or unease. Anxiety is often linked to physical symptoms such as stomach problems, a racing heart, and “startle” responses. Sleep disturbances are common following trauma, and this may include insomnia or nightmares as a way of re-experiencing the traumatic event. Feelings of sadness, hopelessness, and even depression can occur. A person may also dissociate, which involves feeling disconnected from the event or from their sense of self to the extent that their trauma was an “out-of-body” experience (van der Kolk, 2014). Sexual trauma disproportionately affects women and is associated with serious health sequelae. Sexual abuse trauma can damage a person’s sense of safety and disrupts one’s sense of control over his or her own body (Herman, 1992).

Trauma is associated with many adverse health outcomes such as obesity and cardiovascular disease, possibly due to increased allostatic load resulting from stress (McFarlane, 2010). Post-traumatic stress disorder (PTSD) is a stress-related disorder that may result following trauma. As outlined by the DSM-5 (2013), there are four distinct PTSD symptom clusters: intrusion or re-experiencing (e.g., flashbacks), avoidance, negative alterations in cognitions

and mood, and alterations in arousal and reactivity (American Psychiatric Association, 2013). Although a person may not reach the clinical threshold for a PTSD diagnosis, sub-clinical symptoms are distressing and linked with poorer health-related quality of life (Pacella, Hruska, & Delahanty, 2012).

Women & Trauma

Most early research on trauma and PTSD focused on samples of men who were veterans. The field gradually recognized that women had high rates of exposure to different types of trauma, yet their post-traumatic responses were similar to those of men (Herman, 1992). PTSD is now known to occur over twice as frequently in women than men. Prevalence estimates of lifetime PTSD are 9.7% for women and 3.6% for men (Mitchell et al., 2012).

Although women are slightly less likely to experience trauma as it is broadly defined, they are significantly more likely to experience interpersonal and sexual violence, which more commonly leads to PTSD. According to the WHO (2013), 35% of women worldwide experience either physical and/or sexual intimate partner violence (IPV) or non-partner sexual violence. Women are more likely to be neglected or abused in childhood (Tolin & Foa, 2006). Women with PTSD, compared to men with PTSD, are more likely to report co-morbid internalizing disorders like anxiety and depression (Tolin & Foa, 2006). It is believed that both biological and cultural factors play a role in women's heightened vulnerability to PTSD.

Theoretical Background

Two theories that may be useful in understanding the relationships among health, gender, trauma, and stress are family stress theory and feminist frameworks. Family stress theory focuses on the processes through which family systems identify, evaluate, and react to stressful events (Hill, 1949). According to Hill (1949), the stressor interacts with the family's resources (McCubbin & Patterson, 1983). In this "Double ABCX" model, both the stressor and its hardships place demands on the family system. Many factors influence the family's ability to cope with stress, including their abilities and resources to prevent a change from creating a crisis. Stressors and hardships produce distress, which can lead to a crisis, defined as the family's inability to restore stability. Longitudinal data show that families may experience a "pile-up," or a compounding of stressors (McCubbin & Patterson, 1983).

Feminist theory is attuned to discrepancies in power that perpetuate inequality, and recent waves promote an intersectional lens (Cole, 2009) to elucidate how women's experiences are affected by other demographic variables such as class, sexual orientation, race, and religion. These characteristics relate to health as certain identities and statuses (i.e., class) relate to differential access to resources, societal acceptance or discrimination, and stress levels. Porter (2005) identified common themes of contemporary feminist therapy, including the deconstruction of patriarchy to understand the lived experiences of women and the interrelationship of women's multiple realities, experiences, and roles. In general, feminist theory acknowledges the role of the patriarchy in shaping women's lives and argues that this

structure must be eradicated for women to become more empowered and eventually achieve equality (Worell & Remer, 2003).

Family stress theory and feminist frameworks can be integrated to understand the complexity of how stress and gender impacts health. Family stress theory investigates how family systems identify, evaluate, and react to stressful events, and a feminist lens addresses how gender roles and power differentials disadvantage women within the family system. Based on gender role expectations, women with greater stress may have worse physical and mental health as compared to men. The feminist lens posits that gender is often a proxy for power differentials that can relate to health disparities longitudinally.

The aim of the current paper is to investigate how trauma symptoms (anxiety, depression, dissociation, sexual abuse trauma, sleep disturbance, and sexual problems) relate to self-reported mental and physical health among adult community members. Furthermore, we are also curious as to whether daily stress and gender differences play a role in these relationships. Consistent with family stress and feminist theories, women may have higher levels of stress and lower levels of fulfillment in their subordinate gender role. Thus, there is reason to suspect that women experiencing high levels of family stress may be more susceptible to both mental and physical health problems than men. Specifically, we are looking at the interaction effect of stress and gender in these relationships. The current study was guided by the following overarching research question: Do trauma symptoms predict overall mental and physical health? And if so, what is the role of gender and stress? The following were our hypotheses:

- H1: It is hypothesized that trauma symptoms predict overall mental health.
- H2: It is hypothesized that trauma symptoms predict overall physical health.
- H3: It is hypothesized that women with greater trauma symptoms report worse physical health than men.
- H4: It is hypothesized that women with greater trauma symptoms will report worse mental health than men.
- H5: It is hypothesized that people with greater daily stress on top of trauma symptoms report worse physical health than people with less daily stress.
- H6: It is hypothesized that people with greater daily stress on top of trauma symptoms report worse mental health than people with less daily stress.
- H7: It is hypothesized that women who also have greater daily stress and trauma symptoms will report worse physical than men.
- H8: It is also hypothesized that women who also have greater daily stress and trauma symptoms will report worse mental health than men.

Methods

Sample:

Participants of this study were 103 adults (50.5% women). The mean age of participants was 36 years. Participants were recruited through flyers posted around a large southwestern university and the surrounding community. Recruitment materials solicited adults in the area and did not specifically recruit trauma victims. Approximately three quarters of the participants (78%) were Caucasian, 7% were Hispanic, and 8% reported other ethnicities. Over half (54%) of participants reported having children, ranging from one child to seven children. Two thirds of the participants reported being middle class. The sample was well-educated, with 30.6% of participants holding Bachelor's degrees, 14.8% holding Master's degrees, and 23.1% holding Doctoral degrees. The majority of the sample was employed full-time (56.5%) and in a relationship (92.6%).

Procedures:

IRB approval was obtained prior to initiation of this study. Adults who showed an interest in the study were mailed the research packet that included an information sheet, a consent form, and the survey. Participants mailed their signed consent form and completed surveys back to the researchers. Participants were compensated for their responses.

Measures:

The Trauma Symptom Checklist-40 (TSC-40; Elliott & Briere, 1992) is a self-report instrument with 40 items designed to measure a range of traumatic stress symptoms. It is appropriate for research purposes and is not a clinical test. The scale consists of six subscales: depression, anxiety, dissociation, sexual abuse trauma, sleep disturbance, and sexual problems. Subscales are computed by summing the items that contribute to each subscale, and summing all items generates the total score. Respondents are asked if they have experienced various symptoms in the last 2 months; example items include headaches, sexual problems, and dizziness. Items are rated on a 4-point Likert scale according to the frequency of symptoms, from 0 ("never") to 3 ("often").

The TSC-40 has demonstrated good reliability and criterion-related validity in both samples of professional women (Elliot & Briere, 1992) and sexual abuse survivors (Zlotnick et al., 1996). Convergent validity was established for dissociation, depression, anxiety, and traumatic stress, while divergent validity was established using a measure of social support (Zlotnick et al., 1996). Cronbach's alpha for the current study was .89.

Short-Form Health Survey: An abbreviated version of the Short Form Health Survey (SF-36; Ware & Sherbourne, 1992) was used in the current study. The SF-36 is composed of self-report quality-of-life measures encompassing both mental and physical health and has solid psychometric properties. For the current study, the general health subscale consisted of 5 items and had a Cronbach's alpha of .77. Items included a self-rated assessment of overall quality of health ("in general, would you say your health is?") rated from "poor" to "excellent." Other items were rated on a 5-point Likert scale from 1 (definitely true) to 5 (definitely false). These included: "I seem to get sick a little easier than other people;" "I am

as healthy as anybody I know;” “I expect my health to get worse;” and “My health is excellent.”

The mental health subscale also consisted of 5 items and had a Cronbach’s alpha in the current study of .89. The participant indicated how true an item has been for the past month on a 6-point Likert scale, with 1 indicating “all” and 6 indicating “none.” Items were: “Have you felt downhearted and blue?”, “Have you been a very nervous person?”, “Have you felt so down in the dumps that nothing could cheer you up?”, “Have you felt calm and peaceful?”, and “Have you been a very happy person?”

The Family Daily Hassles Inventory (FDHI; Rollins, Garrison, & Pierce, 2002) is a measure of daily hassles where the whole family, rather than the individual, is the unit of analysis. It consists of 22 items that characterize ongoing and comprehensive aspects of daily family life, including but not limited to: childcare, household chores, financial matters, and leisure time. Participants indicate how much the daily life of their family is affected by each item’s dimension: time and energy, negative influence, and positive influence. Responses for each dimension are rated on a Likert-type scale from 1-5, with 1 = *none*, 3 = *moderate*, and 5 = *a great deal*. Reliability analyses of the three dimensions indicate decent internal consistency, as Cronbach’s alpha ranged from .77 (time and energy) to .88 (negative influence). The measure also demonstrated concurrent validity with other daily hassle measures (Rollins, Garrison, & Pierce, 2002). Cronbach’s alpha for the current study was .77.

Results

Data for our study was collected using non-experimental, correlational design. Statistical analyses were performed using SPSS version 20 for Windows software package. Descriptive statistics for major variables in the study are presented in Table 1. To ensure that the data were normally distributed, univariate analysis was conducted. The skewness and kurtosis estimates and histograms were examined. Correlations among the major variables are shown in Table 1. Descriptive statistics for the subscales of TSC is as follows; sleep disturbance ($M = 7.19$, $SD = 3.96$), depression ($M = 6.27$, $SD = 4.02$), Anxiety ($M = 4.55$, $SD = 3.59$), sexual problems ($M = 4.03$, $SD = 3.44$), dissociation ($M = 3.01$, $SD = 2.81$) and sexual abuse trauma ($M = 2.82$, $SD = 2.53$).

Results indicated that trauma symptoms were negatively correlated with mental ($r = -.618$, $p < .001$) and physical health ($r = -.510$, $p < .001$). Furthermore, it was seen that mental and physical health were significantly correlated ($r = .332$, $p < .001$) Gender was not significantly correlated with mental health, physical health, daily hassles, or trauma symptoms. Also, daily hassles were not correlated with mental health, physical health, or trauma symptoms. Regression results for physical and mental health are presented in Table 2 and Table 3, respectively.

H1:

In the current study, trauma symptoms significantly predicted mental health, $b = -.61$, $t(101) = -7.83$, $p < .001$. Trauma symptoms also explained a significant proportion of

variance in physical health scores, $R^2 = .38$, $F(1, 101) = 61.26$, $p < .001$. Results indicate that higher levels of trauma symptoms are associated with worse mental health outcomes.

H2:

In this study, trauma symptoms significantly predicted physical health, $b = -.51$, $t(98) = -5.87$, $p < .001$. Trauma symptoms also explained a significant proportion of variance in physical health scores, $R^2 = .26$, $F(1, 98) = 34.44$, $p < .001$. Results indicate that higher levels of trauma symptoms are associated with worse physical health outcomes.

Hierarchical regression analysis was performed to test the next three hypotheses. Three models were tested using different independent variables (IVs): trauma symptoms, gender, daily hassle, centric TSC, and centric FDHI. Table 3 displays the unstandardized regression coefficients (B) and intercept, the standardized regression coefficients (β), R^2 , and adjusted R^2 after entry of all IVs.

H3:

In this hypothesis, we were wondering whether women have worse physical health if they have similar trauma symptoms to men. In order to test this hypothesis, we employed a hierarchical regression with physical health. After step 1, with trauma symptoms in the equation $R^2 = .25$, $F(1, 101) = 33.62$, $p < .001$. After step 2, with gender added to prediction of physical health, $R^2 = .28$, $F(2, 100) = 19.40$, $p < .05$. Addition of female gender resulted in significant increase in R^2 .

H4:

In this hypothesis, we were wondering whether women have worse mental health if they have similar trauma symptoms to men. Hierarchical regression was employed to test this hypothesis with mental health. After step 1, with trauma symptoms in the equation $R^2 = .37$, $F(1, 101) = 61.27$, $p < .001$. After step 2, addition of female gender did not result in a significant increase in R^2 .

H5:

In this hypothesis, we were wondering whether adults with greater daily stress on top of their trauma symptoms report worse physical health if they have similar trauma symptoms. After step 1, with trauma symptoms in the equation $R^2 = .25$, $F(1, 101) = 33.62$, $p < .001$. After step 2, addition of daily stress did not result in a significant increase in R^2 .

H6:

In this hypothesis, we were wondering whether adults with greater daily stress on top of their trauma symptoms report worse mental health if they have similar trauma symptoms. After step 1, with trauma symptoms in the equation, we found $R^2 = .37$, $F(1, 101) = 61.27$, $p < .001$. After step 2, with daily stress added to prediction of mental health, we found $R^2 = .40$, $F(2, 100) = 33.57$, $p < .05$. The addition of daily stress results in a significant increase in R^2 .

H7:

In this hypothesis, we were wondering whether women have worse physical health if they have similar trauma symptoms and daily stress similar to men. To test this hypothesis with interaction effects, we employed a hierarchical regression. Variables were centered on the mean to prevent multi-collinearity. After step 1, when gender, centered daily hassle and trauma symptoms entered into the equation, we found $R^2 = .29$, $F(3, 99) = 13.24$, $p < .001$. After step 2, addition of two-way interactions effect did not result in a significant increase in R^2 . After step 3 addition of three-way interaction effect did not result in a significant increase in R^2 .

H8:

For this hypothesis, we inquired whether women have worse mental health if they have similar trauma symptoms and daily stress similar to men. In order to test this hypothesis with interaction effects, we employed a hierarchical regression. Variables were centered on the mean to prevent multi-collinearity. After step 1, when gender, centered daily hassle, and trauma symptoms entered into the equation, we found $R^2 = .40$, $F(3, 99) = 22.41$, $p < .001$. After step 2, the addition of two-way interactions effect did not result in a significant increase in R^2 . After step 3, the addition of a three-way interaction effect did not result in a significant increase in R^2 .

As per model 1, trauma symptoms were found to be a predictor of physical and mental health. When adding gender in the regression model (model 2), trauma symptoms still significantly predicted the physical and mental health while gender was found to be predictor of physical health but not mental health. With the addition of gender in the regression model (model 3), trauma symptoms still significantly predicted the physical and mental health; daily stress was found to be predictor of mental health but not physical health. We also did not observe a three-way interaction effect among gender, daily stress, and trauma symptoms on either mental or physical health.

Discussion

The purpose of this study was to examine whether trauma-related symptoms are related to the severity of physical and mental health symptoms within the context of gender and daily stress in a community sample. Data were collected from adult men and women participants near a large southwestern university and its surrounding community. Findings revealed that higher trauma-related symptoms predicted greater physical and mental health symptoms. However, our investigation to determine if trauma symptoms predicted overall mental and physical health, with gender and daily stress as potential moderators, revealed mixed findings. Although sample-specific demographic characteristics such as high income and disproportionately high education levels may have affected the relationships among variables, we still found moderate symptomology relatively high in sleep disturbances, depression, anxiety, with lower levels of dissociation and sexual abuse trauma.

Trauma Symptoms and Physical Health

Results of this study indicated that trauma symptoms are predictors for physical health problems. Similarly, prior research identified the existence of a relationship between trauma and physical health problems (e.g., Pacella, Hruska, & Delahanty, 2013) such as increased pain severity, cardiorespiratory problems, and gastrointestinal complaints (Pacella, Hruska, & Delahanty, 2012). Although the exact mechanisms that link trauma to physical health are unknown, it is possible that the hyperarousal that is a common reaction to trauma plays a role by interfering with the immune system (Segerstrom & Miller, 2004). It is also possible that neurochemical changes in the brain increases vulnerability to physical and biological changes following trauma (Jankowski, 2015), and hence adversely affect physical health.

Findings also revealed that gender moderated physical health and trauma symptoms. Specifically, we found that women have worse self-reported physical health as compared to men. Since women experience more trauma symptoms (due to higher rates of IPV and sexual violence) as compared to men, it might be possible that they are affected disproportionately. Moreover, gender oppression and potentially limited access to health care may heighten vulnerability to health concerns following trauma. Furthermore, women's health is affected by financial security, health insurance, social networks, and self-worth (Schnittker 2007), with many of these variables organized around the ability to maintain employment. However, maintaining employment is more challenging for women due to their caregiving responsibilities, especially after motherhood (French & Damaske, 2012). In our study, many of the participants reported having children at the household. It is possible that caregiving responsibilities fall on the shoulders of women, and hence, there might be a disruption in the continuity of medical care.

Contrary to our expectations and the literature identifying the existence of a relationship between trauma and stress-related health problems (Dufton, Dunn & Compas, 2008; Knol et al., 2006; Pacella, Hruska, & Delahanty, 2013; Seng et al., 2005), results of this study did not support daily stress as a moderator for physical health. It is possible that our highly educated sample was highly functional and may be able to implement adaptive coping styles leading to better management of stress; this hypothesis needs to be further investigated.

Trauma Symptoms and Mental Health

Findings of this study indicated that trauma symptoms are predictors for poor mental health. Contrary to our hypothesis, gender did not moderate mental health symptoms between men and women with similar trauma-related symptoms. The findings of this study contradict the line of research that has indicated the disproportionate burden that trauma bears on women's mental health (Leach, Christensen, Mackinnon, Windsor & Butterworth, 2008; Kessler, 2003; Mitchell et al., 2012; Tolin & Foa, 2006), as evidenced by women's PTSD rates occurring at double the rate of men (Mitchell et al., 2012). Overall, findings did not support research that trauma increases mental health symptoms of women more than men. Although physical and mental health is highly correlated, it is also possible that women's physical health is more likely to be susceptible to disadvantage of gender than their mental health.

Our results demonstrated that daily stress moderated the relationship between trauma-related symptoms and mental health symptoms, regardless of gender. One of the reasons that could explain the situation is that our study sample is different than the norm; the factors which negatively impact the environmental, social, and economic well-being might not be prevalent (Hyde, Mezulis & Abramson, 2008). Perhaps the relative economic and educational affluence of women in the current sample, most of whom were romantically partnered and potentially had a high level of family support, buffered the deleterious effects of trauma on women's mental health symptoms. Supportive families and a strong social support network help decrease stress levels, and social support acts as a protective factor against mental health symptoms (Ozbay, Johnson, Dimoulas, Morgan, Charney & Southwick, 2007). The stability of the family unit may have protected women in the current sample from the effects of stress, minimizing gender differences. Demographic characteristics, such as high levels of graduate education, possibly improved coping, and in turn decreases mental health symptoms, allowing the opportunity to regulate emotions and behaviors, potentially resulting in less physiologic reactivity (Nolen-Hoeksa & Aldao, 2011).

Implications for Family Therapy Practice

This study indicates the importance of a holistic approach in treating trauma, as trauma affects mental and physical health. An intersectional feminist framework encourages clinicians to comprehensively assess the quality of women's lives, the stability of the family unit, partnered relationships, and the nature of daily stress. The results presented here revealed that women with more severe trauma-related symptoms displayed greater physical health symptoms compared to men with similar trauma-related symptoms. This may be due to psycho-social risks and the stresses associated with increased susceptibility to interpersonal and sexual violence (Tolin & Foa, 2006). Trauma-informed therapy can be provided to clients coping with their difficult experiences. Empirically-supported treatments for trauma include Prolonged Exposure (Foa et al., 2005), Cognitive Processing Therapy (Resick, 1994), and Seeking Safety (Najavits et al, 1998), among others.

Therefore, this integrated approach broadens the scope of understanding by helping providers become more aware of the multiple dynamics in individuals' lives and how their physical health is impacted by their mental health—and vice versa. Based on the findings in this study, clinicians can use a thorough assessment to better conceptualize patients, take into account trauma-related illnesses, client gender, and client stress levels. By including these contextual factors, they can competently diagnose and treat the entire family system, with an eye to differences that may vary by gender.

Clinicians can cater their therapeutic techniques to helping the family and the couple develop better coping skills and support each other through stressful periods. Stress management techniques can be taught to the couple, for instance, with each partner encouraging and supporting the other. Distress tolerance skills from Dialectical Behavior Therapy are highly effective (Linehan, 1993). There are also distress prevention training programs for couples, such as Couples Coping Enhancement Training (CCET). Results

indicate that, in addition to acquiring relationship skills, participants in CCET experience reduced marital distress and increased marital satisfaction (Bodenmann & Shantinath, 2004).

A modality that may be helpful for couples coping with trauma is Cognitive-Behavioral Conjoint Therapy for Posttraumatic Stress Disorder (CBCT for PTSD). CBCT is an empirically-supported treatment for PTSD (Monson, Schnurr, Stevens, & Guthrie, 2004). CBCT is a manualized therapy with the simultaneous goals of improving individual PTSD and enhancing intimate relationship functioning. CBCT has been effectively used in both veteran (Schumm et al, 2013) and community samples (Monson et al, 2011). Trauma symptoms in one partner are negatively associated with their intimate partner's psychological functioning, and by offering treatment within the support of the dyad, symptoms of trauma can be treated while the quality of the relationship improves (Shnaider et al, 2014).

Limitations & Future Research

Despite its contributions to the literature, this study has some limitations. The chief restraint is the cross-sectional and correlational design; therefore, causality between variables cannot be assumed. This study utilized self-report measures exclusively. The sample was small and relatively homogenous, with participants recruited from the general population and representing little diversity (mostly white and middle class). Furthermore, the sample was disproportionately well-educated, with 37.8% of participants holding graduate degrees. These factors limit the generalizability of results. As this was a community sample that endorsed relatively low levels of violence and distress, there may have been a floor effect.

Future research could investigate the same phenomena among diverse groups of people from clinical samples that would allow a wider range of responses. Research is also needed to better identify how relationships among different health variables interact with gender, as gender did not moderate mental health symptoms between men and women with similar trauma-related symptoms in the current study. Finally, it is possible that high levels of education provided a relative buffer to adults in our sample. Future research could examine whether level of education serves as a protective factor in the development of health symptoms following trauma, perhaps with coping styles as a mediating variable.

Conclusion

The current study investigated the relationships among health and trauma symptoms in a community sample, with attention to gender and daily stress as potential moderators. Although many studies have investigated trauma and health, this has primarily been in the context of severe trauma such as war (Korinek, Loebach, & Teerawichitchainan, 2017) and natural disasters (Rataj, Kunzweiler, & Garthus-Niegel, 2016), or within clinical samples such as refugees or veterans (Berthold et al, 2014; Ziobrowski et al, 2017). Our findings revealed that trauma symptoms predicted a quarter of the variance in general health symptoms within a community sample, even though participants did not necessarily have a diagnosis of PTSD. These findings advance the field's knowledge base on trauma, mental health, and physical health, with the addition of gender and daily stress as important new variables in these models.

Acknowledgments

Gunnur Karakurt, Department of Psychiatry, Case Western Reserve University. This publication was made possible in part by NIH/NCRR CTSA KL2TR000440. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the NIH.

References

- Bodenmann G, & Shantinath SD (2004). The Couples Coping Enhancement Training (CCET): A new approach to prevention of marital distress based upon stress and coping. *Family relations*, 53, 477–484.
- Cole ER (2009). Intersectionality and research in psychology. *American Psychologist*, 64, 170–180. doi:10.1037/a0014564 [PubMed: 19348518]
- Courtois CA (2014). *It's not you, it's what happened to you: Complex trauma and treatment*. Telemachus Press.
- Dufton LM, Dunn MJ & Compas BE (2009). Anxiety and Somatic Complaints in Children with Recurrent Abdominal Pain and Anxiety Disorders. *Journal of Pediatric Psychology*, 34, 176–186. doi:10.1093/jpepsy/jsn064 [PubMed: 18577541]
- Elliot DM & Briere J (1992). Sexual abuse trauma among professional women: Validating the Trauma Symptom Checklist - 40 (TSC-40). *Child Abuse & Neglect*, 16, 391–398. [PubMed: 1617473]
- Foa EB, Hembree EA, Cahill SP, Rauch SA, Riggs DS, Feeny NC, & Yadin E (2005). Randomized trial of prolonged exposure for posttraumatic stress disorder with and without cognitive restructuring: outcome at academic and community clinics. *Journal of Consulting and Clinical Psychology*, 73, 953. [PubMed: 16287395]
- Flory D, & Yehuda R (2015). Comorbidity between post-traumatic stress disorder and major depressive disorder: Alternative explanations and treatment considerations. *Dialogues Clinical Neuroscience*, 17, 141–150.
- Frech A, & Damaske S (2012). The Relationships between Mothers' Work Pathways and Physical and Mental Health. *Journal of Health and Social Behavior*, 53(4), 396–412. 10.1177/0022146512453929 [PubMed: 23197483]
- George JA, & Stith SM (2014). An updated feminist view of intimate partner violence. *Family Process*, 53, 179–193. [PubMed: 24749960]
- Herman JL (1992). *Trauma and recovery*. New York, NY: Basic Books.
- Hill R (1949). *Families under stress*. New York: Harper & Row.
- McCubbin HI, & Patterson JM (1983). The family stress process: The double ABCX model of adjustment and adaptation In McCubbin HI, Sussman MB, & Patterson JM (Eds.), *Social stress and the family: Advances and developments in family stress theory and research*, (pp. 7–37). New York: Haworth.
- Hyde JH, Mezulis AH, & Abramson LY (2008). The ABCs of depression: Integrating affective, biological, and cognitive models to explain the emergence of the gender difference in depression. *Psychological Review*, 115, 291–313. [PubMed: 18426291]
- Jankowski K (2015). PTSD and physical health. Retrieved from: <http://www.ptsd.va.gov/professional/co-occurring/ptsd-physical-health.asp>
- Kessler RC (2003). Epidemiology of women and depression. *Journal of Affective Disorders* 74, 5–13. doi:10.1016/S0165-0327(02)00426-3 [PubMed: 12646294]
- Knol M et al. (2006). Depression as a risk factor for the onset of type 2 diabetes mellitus: A meta-analysis. *Diabetologia*, 49, 837. doi:10.1007/s00125-006-0159-x [PubMed: 16520921]
- Leach LS, Christensen H, Mackinnon AJ, Windsor TD, & Butterworth P (2008). Gender differences in depression and anxiety across the adult lifespan: The role of psychosocial mediators. *Social Psychiatry & Psychiatric Epidemiology*, 43, 983–998. doi:10.1007/s00127-008-0388-z [PubMed: 18575787]
- Marcus M, Yasamy MT, van Ommeren M, Chisholm D, Saxena S (2012). *Depression, A Global Public Health Concern*. Geneva: World Health Organization Retrieved from: http://www.who.int/mental_health/management/depression/who_paper_depression_wfmh_2012.pdf.

- McFarlane AC (2010). The long-term costs of traumatic stress: Intertwined physical and psychological consequences. *World Psychiatry*, 9, 3–10. [PubMed: 20148146]
- McCubbin HI & Patterson JM (1983). The family stress process: The double ABCX model of adjustment and adaptation. *Marriage and Family Review*, 6, 7–37.
- McKay JM, & Rutherford A (2012). Feminist women's accounts of depression. *Journal of Women and Social Work*, 27, 180–189.
- Mitchell KS, Mazzeo SE, Schlesinger MR, Brewerton TD, & Smith BN (2012). Comorbidity of partial and subthreshold PTSD among men and women with eating disorders in the National Comorbidity Survey-Replication Study. *International Journal of Eating Disorders*, 45, 307–315. doi:10.1002/eat.20965 [PubMed: 22009722]
- Monson CM, Schnurr PP, Stevens SP, & Guthrie KA (2004). Cognitive-behavioral couple's treatment for posttraumatic stress disorder: Initial findings. *Journal of Traumatic Stress*, 17, 341–344. [PubMed: 15462542]
- Monson CM, Fredman SJ, Adair KC, Stevens SP, Resick PA, Schnurr PP, & Macdonald A (2011). Cognitive-behavioral conjoint therapy for PTSD: Pilot results from a community sample. *Journal of Traumatic Stress*, 24, 97–101. [PubMed: 21351166]
- Najavits LM, Weiss RD, Shaw SR, & Muenz LR (1998). "Seeking safety": Outcome of a new cognitive-behavioral psychotherapy for women with posttraumatic stress disorder and substance dependence. *Journal of Traumatic Stress*, 11, 437–456. [PubMed: 9690186]
- Nolen-Hoeksema S, & Aldao A (2011). Gender and age differences in emotion regulation strategies and their relationship to depressive symptoms. *Personality and Individual Differences*, 51, 704–708.
- Porter N (2005). Location, location, location: Contributions of contemporary feminist theorists to therapy theory and practice. *Women & Therapy*, 28, 143–160. doi:10.1300/J015v28n03_07
- O'Donnell ML, Creamer M, & Pattison P (2004). Posttraumatic Stress Disorder and Depression Following Trauma: Understanding Comorbidity. *American Journal of Psychiatry*, 161, 1390–1396. [PubMed: 15285964]
- Ozbay F, Johnson DC, Dimoulas E, Morgan CA, Charney D, & Southwick S (2007). Social support and resilience to stress: From neurobiology to clinical practice. *Psychiatry*, 35–40.
- Pacella ML, Hruska B, & Delahanty D (2012). The physical health consequences of PTSD and symptoms: A meta-analytic review. *Journal of Anxiety Disorders*, 27, 33–46. [PubMed: 23247200]
- Rollins SZ, Garrison MEB & Pierce SH (2002). The Family Daily Hassles Inventory: A Preliminary Investigation of Reliability and Validity. *Family and Consumer Sciences Research Journal*, 31, 2, 135–154. doi:10.1177/107772702237932
- Resick PA (1994). Cognitive processing therapy for rape-related PTSD and depression. *The National Center for PTSD Clinical Quarterly*, 4, 1–5.
- Schumm JA, Fredman SJ, Monson CM, & Chard KM (2013). Cognitive-behavioral conjoint therapy for PTSD: Initial findings for Operations Enduring and Iraqi Freedom male combat veterans and their partners. *The American Journal of Family Therapy*, 41, 277–287.
- Segerstrom SC & Miller GE (2004). Psychological stress and the human immune system: A meta-analytic study of 30 years of inquiry. *Psychological Bulletin*, 104, 601–630.
- Seng JS, Graham-Bermann SA, Clark MK, McCarthy AM & Ronis DL (2005). Posttraumatic stress disorder and physical comorbidity among female children and adolescents: results from service-use data. *Pediatrics*. 116, 767–776. [PubMed: 16140721]
- Shnaider P, Pukay-Martin ND, Fredman SJ, Macdonald A, & Monson CM (2014). Effects of cognitive-behavioral conjoint therapy for PTSD on partners' psychological functioning. *Journal of Traumatic Stress*, 27, 129–136. [PubMed: 24706354]
- Schnitker J (2007). Working more and feeling better: Women's health, employment, and family life, 1974–2004. *American Sociological Review*. 72, 221–238.
- Tolin DF, & Foa EB (2006). Sex differences in trauma and posttraumatic stress disorder: A quantitative review of 25 years of research. *Psychological Bulletin*, 132, 959–992. doi: 10.1037/0033-2909.132.6.959 [PubMed: 17073529]
- Van der Kolk B (2014). *The Body Keeps the Score: Brain, Mind, and Body in the Healing of Trauma*. Viking: NY.

- Ware J & Sherbourne CD (1992). The MOS 36-item Short-form Health Survey (SF-36): I. Conceptual Framework and Item Selection, *Medical Care*, 30, 6, 473–483. [PubMed: 1593914]
- Worell J, & Remer P (2003). *Feminist perspectives in therapy: Empowering diverse women* 2nd ed.). Hoboken, NJ, US: John Wiley & Sons Inc.
- Zlotnick C, Shea MT, Begin A, Pearlstein T, Simpson E, & Costello E (1996). The validation of the Trauma Symptom Checklist-40 (TSC-40) in a sample of inpatients. *International Journal of Child Abuse and Neglect*, 20, 503–510.

Table 1.

Correlations Table with Major Variables

	Physical Health	Mental Health	Daily Hassle	Trauma Symptoms	Gender	Centric TSC	Centric FDH	Gender FDH	TSC
Physical Health M= 18.69 S.D = 3.92	1								
Mental Health M=22.77 S.D=4.81	.33**	1							
Daily Hassle M=133.73 S.D=20.03	-.22	.07	1						
Trauma Symptoms M=24.80 S.D=13.74	-.51	-.62**	.20	1					
Gender	.14	-.09	.09	.08	1				
Centric TSC	-.50**	-.61**			.08	1			
Centric FDH	-.15	.06			.07		1		
Gender FDH TSC	.02	.05			.12	.16	-.22**	1	

Table 2.

Summary of Hierarchical Multiple Regression Analysis for Variables Predicting Physical Health (N=104)

	Model 1			Model 2			Model 3			Model 4		
Variable	<i>B</i>	<i>SE B</i>	<i>B</i>	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	<i>B</i>	<i>B</i>	<i>SE B</i>	β
Trauma Symptoms	−.14	.02	−.51	−.15	.03	−.51	−.14	.03	−.49	−.12	.03	−.51
Gender				1.3	.66	.17				1.4	.76	.21
Daily Hassle							−.02	.02	−.07	−.03	.02	−.16
Gender × Trauma Symptoms										−.13	.05	−.40
Gender × Daily Hassle										.04	.04	.15
Trauma Symptoms × Daily Hassle										−.00	.00	−.09
Trauma Symptoms × Daily Hassle × Gender										.01	.00	.53
R ²	.26 ^{**}				.28 [*]			.26			.43	
F for change in R ²	34 ^{**}				4.2 [*]			.70			3.6	

Note: Daily Stress and Trauma Symptoms were centered at their means for the interaction analysis in model 4

*
p<.05**
p<.01.

Table 3.

Summary of Hierarchical Multiple Regression Analysis for Variables Predicting Mental Health (N=104)

Variable	Model 1			Model 2			Model 3			Model 4		
	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β	<i>B</i>	<i>SE B</i>	β
Trauma Symptoms	-.22	.03	-.61	-.22	.03	-.16	-.23	.03	-.64	-.19	.04	-.57
Gender				-.41	.76	-.04				-1.61	1.02	-.17
Daily Hassle							.05	.02	.16	.04	.03	.18
Gender $\times$ Trauma Symptoms										.03	.07	.07
Gender $\times$ Daily Hassle										-.05	.05	-.16
Trauma Symptoms $\times$ Daily Hassle										.00	.00	.07
Trauma Symptoms $\times$ Daily Hassle $\times$ Gender										.00	.00	.30
R ²	.38	**		.38			.40	*		.40		
F for change in R ²	61	**		.30			4.0	*		1.1		

Note: Daily Stress and Trauma Symptoms were centered at their means for the interaction analysis in model 4

*
p<.05**
p<.01