AMERICAN PSYCHOLOGICAL ASSOCIATION
DIVISION 56 TRAUMA PSYCHOLOGY AMERICAN PSYCHOLOGICAL ASSOCIATION

Psychological Trauma:
Theory, Research, Practice, and Policy

ISSN: 1942-9681

2021, Vol. 13, No. 3, 349–358
http://dx.doi.org/10.1037/tra0000585

Predicting Changes in PTSD and Depression Among Female Intimate Partner Violence Survivors During Shelter Residency: A Longitudinal Study

Omer Shaked, Rachel Dekel, Anat Ben-Porat, and Haya Itzhaky
Bar-Ilan University

Objective: Posttraumatic stress disorder (PTSD) and depression are comorbid consequences of intimate partner violence (IPV), and models explain this comorbidity via an intrinsic relationship between them. The current study posits that changes in both disorders may provide a clearer picture regarding the interrelations between them. We examined mutual contributions of changes in PTSD and depression to each other. The comorbidity was examined through known risk and protective factors related to both disorders among IPV survivors: perception of danger, helplessness, and peer support. ***Method:*** Sample included 146 female IPV survivors residing in 12 shelters in Israel between September 2009 and April 2014. Self-report questionnaires were completed upon entrance to the shelter and before departure. Analysis included 2 regressions, in which the change-score dependent variable of the first appeared as a regressor in the second and vice versa. ***Results:*** The regression designed to explore the contribution of changes in depression to PTSD-change explained 48% of the variance, while the regression designed to explore the contribution of changes in PTSD explained 67% of the variance. Changes in both PTSD (β = .14, p = .014) and depression (β = .014, p = .05) contributed similarly to changes in each other, suggesting covariance within IPV-related variables. In addition, the contribution of Arab ethnicity to changes in PTSD was significant. ***Conclusions:*** The current study's contribution is in identifying covariance between PTSD and depression along time within the context of variables related to IPV. Clinical implications are discussed.

Clinical Impact Statement
Many women are forced to cope with partner violence. When the violence is severe, they often have to deal with posttraumatic stress disorder (PTSD) and depression as well, which are coinciding consequences of the violence. During therapy, changes in both PTSD and depression can occur, but these changes are entwined with one another. Therefore, therapists need to be mindful of both PTSD and depression together. Therapists are also advised to plan a culturally sensitive therapy that takes into consideration culture-specific nuances and emotional expressions that surely color the experiences of these survivors.

Keywords: PTSD, depression, IPV, shelters, longitudinal study

Intimate partner violence (IPV) can be described as various forms of aggressive behaviors between dating, cohabiting, and married couples. (Cannon, Hamel, Buttell, & Ferreira, 2016). It is customary to acknowledge four main categories of its appearance: physical, emotional, sexual, and terrorizing (Nicholls & Hamel, 2015). Research indicates that IPV has an intermittent pattern that can escalate throughout the years, up to the level of endangering a woman's life (Campbell, Webster, & Glass, 2009; Walker, 2017).

Shelters are therefore designed to protect victims, and among shelter residents, several studies have indeed found the prevalence of violence to be extremely severe, as a majority of the residents believed they would be killed by their partners (Bargai, Ben-Shakhar, & Shalev, 2007; Campbell et al., 2009; Mertin & Mohr, 2001). Frequently, violence survivors apply to shelters after the occurrence of an acute event that caused them severe damage (Clevenger & Roe-Sepowitz, 2009). It is very likely that these events qualify for the *DSM* criteria of traumatic events (APA, 1994, 2013).

IPV, Posttraumatic Stress Disorder, and Depression

Two prominent mental disorders—posttraumatic stress disorder (PTSD) and depression (Golding, 1999)—are consistently highlighted as being consequences of the violence endured by female IPV survivors. PTSD is a dominant stress response to traumatic

This article was published Online First August 20, 2020.
Omer Shaked, Rachel Dekel, Anat Ben-Porat, and Haya Itzhaky, The Louis and Gabi Weisfeld School of Social Work, Bar-Ilan University.
Correspondence concerning this article should be addressed to Omer Shaked, The Louis and Gabi Weisfeld School of Social Work, Bar-Ilan University, Ramat-Gan 5290002. E-mail: omer.shaked@biu.ac.il

events, such as IPV, and is manifested in intrusive reexperiencing of the violent incidents, avoidant behaviors, hyperarousal, and negative cognitions (APA, 2013). A meta-analysis found that a mean prevalence of 63.8% of IPV victims met PTSD diagnosis criteria (Golding, 1999). In recent years, several studies reported a prevalence ranging from 48.2% to 86.1% of PTSD among shelter residents (Lilly, Howell, & Graham-Bermann, 2015; Johnson & Zlotnick, 2012; Pinna, Johnson, & Delahanty, 2014; Salcioglu, Urhan, Pirinccioglu, & Aydin, 2017). At the same time, findings illustrate a significant decrease in PTSD symptoms during residency in shelters among IPV survivors over time (Eckhardt et al., 2013; Johnson, Zlotnick, & Perez, 2011; Sullivan, 2018).

Alongside PTSD, depression is also closely associated with severe IPV. Depression consists of sadness, diminished interest in activities, feelings of worthlessness, and cognitions of hopelessness (APA, 2013). A meta-analysis found that a mean prevalence of 47.6% of IPV victims met depression diagnosis criteria (Golding, 1999). Recent studies reported a prevalence ranging from 32.7% to 47.6% of depression among female IPV victims (Kelly, 2010) and female shelter residents (Pinna et al., 2014; Salcioglu et al., 2017). As with PTSD, the research indicates a significant reduction in depressive symptoms during residency in women's shelters among IPV survivors over time (Eckhardt et al., 2013; Johnson et al., 2011; Sullivan, 2018).

The chief goal of the current study was to examine the changes in both PTSD and depression among Israeli female survivors of IPV. Furthermore, the current study posits that identifying the contributions to changes in both disorders would likely provide a clearer picture regarding the interrelations between them. As such, we predicted the relationship between PTSD and depression through known risk and protective factors for changes in PTSD and depression.

Theoretical Models of the Association Between PTSD and Depression

Several studies have investigated the nature of comorbidity between PTSD and depression among IPV survivors residing in shelters (Johnson, Delahanty, & Pinna, 2008; Pinna et al., 2014). Stander, Thomsen, and Highfill-McRoy (2014) highlight in their review two models that have received substantial empirical support and suggest hierarchical structures: a model of preexisting depression that increases the risk of PTSD and a model of preexisting PTSD that increases the risk of depression. These central models therefore formed the basis of the current study.

The idea that PTSD precedes a later diagnosis of depression is grounded in abundant theoretical and empirical data (Watson, 2005). According to this view, a dysphoric aspect of PTSD is responsible for the comorbidity of PTSD and depression. Thus, from this perspective, PTSD is understood as a higher-order psychopathological disorder, which subsumes negative emotional states such as sadness and dependency (Biehn et al., 2013) that may predict a later development of depression. Furthermore, findings have demonstrated that the risk for major depressive disorder (MDD) among individuals who were exposed to traumatic events is significantly higher for individuals who develop PTSD compared to individuals who do not develop PTSD (Breslau, Davis, Peterson, & Schultz, 2000). In addition, the prevalence of IPV survivors' reports of childhood exposure to traumatic events is significantly higher in comparison to those of the general population (Alexander, 2009; Briere & Jordan, 2009). The importance of these findings lies in the association that has been found between PTSD during childhood and high levels of stress in adult intimate relationships (Astin, Ogland-Hand, & Foy, 2002), suggesting that PTSD during childhood may precede depression that occurs during adulthood among shelter residents (Alexander, 2009; Graham-Berman & Levendosky, 1998).

The second model reviewed by Stander et al. (2014) proposes that preexisting depression increases the risk of PTSD. Yet the second model is somewhat controversial (Emery, Emery, Shama, Quiana, & Jassani, 1991). As Emery et al. (1991) contend, a model that ascribes the development of PTSD to a prior pathology bears the hallmarks of epistemology, which focuses primarily on individual traits, a view that misses the powerful impact of actual traumatic events. An ecological view of PTSD, in contrast, highlights actual traumatic stressors that can cause PTSD (Harvey, 1996; Harvey et al., 2003), and thus, according to this view, PTSD would not be seen as a later development of a prior pathology. Findings in support of the ecological view may be found in a study revealing that people who had no preexisting conditions developed PTSD nevertheless, particularly when the stressor was severe (Emery et al., 1991). Thus, there seems to be a stronger case for the idea that preexisting PTSD increases the risk of depression, rather than vice versa, in understanding the co-occurrence of PTSD and depression. The current study, however, could not examine the preexistence of either PTSD or depression; nevertheless, the study's research question was whether one psychopathology had some priority over the other in terms of PTSD and depression comorbidity and, in other words, whether one had a bigger role as a contributor to comorbidity than the other.

In order to discover whether a precedence exists of one over the other, potentially explaining the comorbidity of depression and PTSD, the second goal of the current study was to explore the mutual contribution of one to the other: that is, the contribution of changes in PTSD to changes in depression and vice versa. Finally, the third goal of the current study was to explore the intrinsic relationship between PTSD and depression through the risk and protective factors for changes in PTSD and depression.

Risk and Protective Factors for Predicting PTSD and Depression Changes

The current study examined models suggesting that the priority of one disorder increases the risk of the other. However, it is possible that such changes may appear only within the context of certain attributes of IPV survivors or within the context of shelter interventions. As such, the changes in both disorders have been observed while taking into account variables that are known to be characterized as risk or protective factors for IPV survivors. Risk factors include perception of danger (Salcioglu et al., 2017) and feelings of helplessness (Bargai et al., 2007), and protective factors consist of intense peer support, a variable known to characterize shelter interventions (Coker, Watkins, Smith, & Brandt, 2003). All of these factors are commonly related to both PTSD and depression (Coker et al., 2003; Salcioglu et al., 2017). A more comprehensive description of risk and protective factors follows.

Risk Factors

Perceived imminent and life-threatening danger and severe physical harm are common etiological events for PTSD and depression (*DSM–5*; Paris, & Phillips, 2013). These factors are also common among IPV survivors, who seek refuge in shelters (Bargai et al., 2007; Bybee & Sullivan, 2002; Eckhardt et al., 2013; Mertin & Mohr, 2001). Shelter interventions provide, first and foremost, safety for female survivors and their children (Eckhardt et al., 2013; Sullivan, 2018). Findings indicate that fear and perceived danger are central characteristics of shelter residents, related to both PTSD and depression, as well as other variables such as helplessness (Salcioglu et al., 2017).

The second factor related to both PTSD and depression is, as alluded to above, helplessness. Learned helplessness (LH) has been presented as an etiological factor in depression, due to negative cognitive appraisals of uncontrollable aversive events that contribute directly to the emotional response (Maier, 1984). In addition, LH has also been presented as an etiological factor in PTSD, due to deficits of actions to avoid uncontrollable aversive events that contribute directly to PTSD symptoms (Foa, Zinbarg, & Rothbaum, 1992). Among female shelter residents, LH was examined via an opposite variable, termed *learned resourcefulness,* the latter of which was found indeed to contribute directly to lower levels of both PTSD and depression (Peterson, 2013). Moreover, the findings of Bargai et al. (2007) also demonstrated that among female shelter residents, LH was expressed in low levels of sense of control and feelings of helplessness and, as such, was found to mediate the contribution of violence to both PTSD and MDD among shelter residents.

Protective Factor

Shelters provide surroundings that are characterized by intense social support (Bybee & Sullivan, 2005), which can be defined as supportive actions provided by others, or the mere availability of such actions. Findings have shown a relation between social support and a reduction of both PTSD and depression (Jonker, Sijbrandij, Van Luijtelaar, Cuijpers, & Wolf, 2015).

Furthermore, social support has been found to serve as a buffer against, as well as a moderator of, stressful events (Lakey & Cohen, 2000). The literature has also demonstrated that companionship decreases depression related to stressful events (Thoits, 2011). Regarding IPV, peer relationships are thought to be crucial, given that the social relationships of women who are victims of IPV are often targeted by their abusers (Bybee & Sullivan, 2005; Perez-Trujillo & Quintane, 2017). Peer support includes acceptance, empathy, and a sense of community, all of which increase hope, autonomy, and efficacy (Davidson, Chinman, Sells, & Rowe, 2006).

The Current Study

As stated previously in the literature review, findings have indicated that severe IPV often results in the co-occurrence of PTSD and depression (Nixon, Resick, & Nishith, 2004; Pinna et al., 2014). However, the mechanism underlying the association between PTSD and depression is, to date, unclear. The current study's first goal was therefore to examine the changes in PTSD and depression among female IPV survivors during shelter residency. The second goal was to explore the relationship between the changes in PTSD and the changes in depression: that is, the contribution of changes in PTSD to changes in depression and vice versa. The third goal was to examine the contribution of shared risk and protective variables to the changes in both disorders in order to better understand the underlying mechanisms of these unique and shared factors. Against this background, we hypothesized the following:

1. A reduction in the severity of PTSD and depression between entrance and departure would be found among shelter residents.

2. The contribution of changes in PTSD to changes in depression would be greater than the contribution of changes in depression to changes in PTSD.

3. Perception of danger, feelings of helplessness, and peer support would contribute to the level of reduction in both PTSD and depression.

Method

Participants

The sample included 146 female residents in 12 shelters throughout Israel. Forty-eight of the women were of Jewish ethnicity and were born in Israel, 41 immigrated to Israel from the former Soviet Union, 29 immigrated to Israel from Ethiopia, and 29 were of Arab ethnicity and were born in Israel. The shelters are located in different geographical regions of Israel and therefore reflect the Israeli population's diversity, with shelter residents coming from a variety of socioeconomic statuses and ethnic backgrounds. A total of 1,409 IPV victims had been referred to the shelters between September 2009 and April 2014. After excluding women with severe cognitive impairments or diagnosed mental disorders (such as schizophrenia)—which had been diagnosed with no relation to IPV—and women who stayed in the shelter fewer than 7 days, data were collected from 526 women, and the response rate was 68.97%. Twenty additional participants were excluded due to the completion of less than 42% of the questionnaires. The final database therefore included 506 participants completing either an entrance questionnaire at Time T_1 or an exit questionnaire at Time T_2. The current research sample included only 144 participants completing both questionnaires at T_1 and T_2.

The women's average age was $M = 33.21$ ($SD = 8.69$), with an average of $M = 11.1$ ($SD = 3.52$) years of education and an average of 2.42 children ($SD = 1.59$) among them. Forty-nine percent of the women earned minimum wage at their jobs ($M =$ 3,600 NIS). A prevalence of 45.8% of the participants applied to shelters after experiencing an acute violent event, and 78.5% of the participants had applied to shelters previously at least once. Sixty-eight percent of the survivors reported being victims of recent severe violence, 21.7% had been hospitalized after being assaulted, and 55.5% reported receiving threats on their lives.

Procedure

Social workers at the shelters distributed self-report questionnaires and were instructed to provide the participants with emotional support if necessary. The questionnaires were in Hebrew, Arabic, Russian, and Amharic. The participants were told that the aim of the research was to gain more knowledge about women who survived domestic violence and about what could be done to help them. The women were asked to complete the questionnaires within 3 weeks of entering the shelter and once again a week before departure.

All of the participants signed informed consent forms, which included an assurance that their refusal to fill out the questionnaires would not affect their stay at the shelters. Completed questionnaires were returned in sealed envelopes, and participants were guaranteed anonymity. The study was approved by the Ministry of Social Affairs and Social Services and the Ethics Committee of Bar-Ilan University in Israel.

Measures

Demographic questionnaire. Participants were asked to describe their personal characteristics: year of birth, ethnic origin, religion, country/countries of citizenship, education, income level, employment status, and family situation (marital status, number of children, and number of children residing in the shelter).

Traumatic life events. This questionnaire (Solomon, 1995) measures stressful events that have occurred in the past. In the current study, three out of nine items that were of no relevance to our research were excluded, and a question about witnessing parental violence was added; the questionnaire therefore contained a total of seven questions. For each question, participants were requested to circle either "yes" or "no" as to whether they had experienced it and, if so, at which point in their lives. A sample question was: "Have you experienced a serious injury or a life-threatening event? If yes, in what year and month?"

Depression. A scale based on the Brief Symptom Inventory (BSI; Derogatis, 1992) was used to measure depression. This self-report questionnaire is based on the preceding 2 weeks and consists of a list of six items measuring the participant's mood (e.g., "no hope for the future"). Participants were asked to indicate the extent to which they had experienced each of the moods on a 5-point scale ranging from 0 (*not at all*) to 4 (*to a great extent*). In a previous study, the Cronbach's alpha for this scale was .89 (Hoffman, Zevon, D'arrigo, & Cecchini, 2004). Norms for the BSI among the general population were constructed, and the average norm in Israel for the depression subscale was $M = .70$, $SD = 0.69$ (Gilbar & Ben-Zur, 2002). In this study, the level of depression was $M = 2.33$, $SD = 1.1$.

PTSD severity. This PTSD scale self-report (Solomon & Horesh, 2007) evaluates the occurrence of 17 PTSD symptoms based on the preceding 2 weeks. Five items measure intrusive symptoms, seven items measure avoidance symptoms, and five items measure arousal symptoms. The items range on a 4-point Likert scale from 1 (*never*) to 4 (*often*). The probable diagnosis of PTSD according to the *DSM–IV* (Solomon & Horesh, 2007), which was the *DSM* version in use during the period when the current study was conducted, required the occurrence of at least one intrusive symptom, at least three avoidance symptoms, and at least two arousal symptoms. In addition, an average mean of the symptom's level was calculated. Reliability in earlier studies was high (e.g., Solomon, Dekel, & Zerach, 2008). In the current research, reliability was $\alpha = .84$.

Violence severity. This questionnaire (Eisikovits, Winstok, & Fishman, 2004) contains 13 items measuring different types and frequency of violence: verbal assault (cursing, insulting, yelling), psychological or emotional abuse (threatening, controlling, domineering, stalking, isolating, or resource-preventing behaviors), and physical assault (the breaking of material items, moderate physical violence, severe physical violence). For each of these items, the participants were asked to rank the frequency of abuse on a 4-point Likert scale ranging from 1 (*once*) to 4 (*every day*). The overall reliability was $\alpha = .90$.

Perceived risk to life questionnaire. This single-item questionnaire—based on a study by Gal (1994), which assessed the sense of stress and danger among Israelis who had been exposed to terror—was adapted to assess the women's perceived sense of danger in the context of exposure to domestic violence. Participants were asked, "In your relationship with your partner/the person who harmed you, to what extent have you felt that your life is in danger?" Responses were based on a 10-point scale, ranging from 1 (*not at all*) to 10 (*to a very great extent*).

Sense of control. This questionnaire (Pearlin & Schooler, 1978), translated into Hebrew (Hobfoll, & Walfisch, 1984), contains six items measuring an individual's sense of control via statements describing the participant's perceptions, such as, "I have very little control over the things that happen to me." The participant's agreement was measured on a 5-point Likert scale ranging from 1 (*I do not agree at all*) to 5 (*I very much agree*). Factor analysis technique (principal axis factoring with oblimin rotation) was utilized to explore the dimensionality of this construct. The analysis determined two distinct (orthogonal) factors: "sense of future control" (two items) related to the feeling of being able to take action in the future and "feeling helpless" (four items) related to feelings of helplessness in the present, for which higher scores reflected a stronger sense of future control or a stronger feeling of helplessness, respectively. In the current research, reliability of the two factors was $\alpha = .61$ and $\alpha = .65$, respectively. Although these levels are considered to be below the common threshold, $\alpha > .70$, an alternative one-index for all six items yielded a much lower consistency level, $\alpha = .51$.

Peer group support. This questionnaire (Yalom, 1995) contains 19 items measuring self-reported perceived peer group support upon departure. The participant's agreement to statements describing perceptions such as "I felt trust towards other women staying in the shelter with me" or "The women have taught me what kind of impression I make on others" was measured on a 5-point Likert scale ranging from 1 (*I do not agree at all*) to 5 (*I very much agree*). In a study among populations with addictions (Ranz, Dekel, & Itzhaky, 2012), internal reliability was Cronbach's $\alpha = .89$. In the current study, internal reliability was $\alpha = .89$ as well. The variable peer group support was calculated as the sum of all items, as a high value stands for greater peer group support.

Statistical Analysis

Missing data imputation with a model-based approach was estimated. That is, missing data points were filled in at multiple

times to allow an unbiased estimation of the parameters and standard errors of the statistical model, in the presence of a very small amount of missing data—less than 5% (Little, 2012).

Initial measurements of the changes in symptom level indicated a mean decrease ($M = .41$, $SD = .06$) in PTSD and depression symptoms ($M = 1.43$, $SD = .10$), from entrance (T_1) to departure (T_2). Descriptive analysis of the data reveals that a majority of the survivors ($n = 106$, 72.6%) reported a decrease of the mean PTSD symptoms level between T_1 and T_2, while some of the survivors ($n = 38$, 26%) reported an increase of the mean PTSD symptoms level. Two survivors ($n = 2$, 1.4%) reported no change in the mean PTSD level. Demographic variables were not associated with an increase or a decrease of PTSD symptoms level. Furthermore, a majority of the survivors ($n = 120$, 82.2%) reported a decrease of the mean depression symptoms level, and some survivors ($n = 15$, 10.3%) reported an increase of the mean depression symptoms level. Eleven survivors ($n = 11$, 7.5%) reported no change in the mean depression level. Demographic variables were not associated with an increase or a decrease of the depression symptoms level. The sample's symptoms were standardized for further analysis.

First, two separate *t* tests for repeated measures for PTSD and depression were conducted, between T_1 upon entrance and T_2 before departure. Then, a Pearson correlation test was conducted to examine the study's variables significant relationship to depression-change and PTSD-change.

Next, to estimate the hierarchical order between PTSD and changes in depression, two regressions were designed. In order to estimate whether the contribution of changes in PTSD to changes in depression was greater than the contribution of changes in depression to changes in PTSD, in both regressions, the change-score dependent variable of the first appeared as a regressor in the second and vice versa (Allison, 1990). Our test for normality of distribution resulted in $p = .20$ for the Kolmogorov–Smirnov test of normality and $p = .18$ for the Shapiro–Wilk test of normality. These results indicated an approximately normal distribution (Field, 2009). Demographic variables that were not found significant in the Pearson correlation test were not included in the regression. Variables that were not found significant in the Pearson correlation test but are related to conceptualizations of IPV, PTSD, and depression, such as traumatic life events and violence severity, were nonetheless included.

For both regressions, the order of steps was identical. In the first regression, the dependent variable was PTSD-change. The first step therefore included PTSD upon entrance to the shelter in order to control for its contribution to the prediction of the dependent variable in the model. The first step also included age, education, and ethnicity. Ethnicity was entered into the regression as three demi-variables (i.e., Arab ethnicity vs. Jewish native-born Israeli, Russian ethnicity vs. native Israeli, Ethiopian ethnicity vs. native Israeli). The second step included variables known to characterize IPV survivors, specifically perceived risk to life and sense of control. Sense of control was calculated with feelings of helplessness and with sense of future control, and both were calculated upon departure. The second step also included peer group support in the shelter, because of its chronological location among variables. The third step included changes in depression.

In the second regression, the dependent variable was depression-change. As with PTSD in the first regression, the first step included depression upon entrance to the shelter in order to control for its contribution, and the third step included changes in PTSD, accordingly. All the other steps were identical to the first regression.

Results

The current study's hypothesis was that a reduction in PTSD and depression would occur during shelter residency. Upon entrance, a majority of survivors—93 out of a total of 146 (63.7%)—reported symptoms that matched the full criteria of a PTSD diagnosis. In addition, depression that was measured via the BSI mean score was compared with norms for the general population. The average norm in Israel for the depression BSI subscale is $M = 0.70$, $SD = 0.69$ (Gilbar & Ben-Zur, 2002), and in the current study, the scores of 132 survivors out of a total of 146 (90.4%) exceeded the cutoff point. A further examination indicates that the mean baseline level of depression significantly decreased from 2.27 ($SD = 1.14$) to .84 ($SD = .87$), $t = 13.87$, $p = .000$, before departure. The mean PTSD level at baseline was 2.61 ($SD = .63$) and remained relatively high at 2.21 ($SD = .63$), $t = 7.21$, $p = .000$, before departure. In comparison, among the larger population ($n = 505$) who completed questionnaires only upon entrance, the mean baseline level of depression was 2.34 ($SD = 0.49$), and the mean baseline level of PTSD was 2.63 ($SD = 0.03$), both of which are similar to baseline levels of PTSD and depression in the current study. Furthermore, an analysis of variance of both mean baseline PTSD symptoms and mean baseline depression symptoms by week of shelter entry was conducted. No significance was found to indicate that timing of the baseline survey relative to the shelter entrance was a factor.

Most of the women ($n = 129$; 83%) reported exposure to traumatic life events. More than half ($n = 80$, 54.8%) reported exposure to traumatic events during childhood.

Correlation Between Study Variables and Changes in PTSD and Depression

Table 1 presents Pearson's correlations between the study variables. The correlation between PTSD and depression was $r = .408$,

Table 1
Pearson's Correlations Between the Study's Variables

Variable	PTSD-change	Depression-change
PTSD-change	—	.408***
Depression-change	.408***	—
Arab ethnicity vs. native Israeli	−.12	−.08
Russian ethnicity vs. native Israeli	.04	−.06
Ethiopian ethnicity vs. native Israeli	−.16	−.01
Age	.03	.09
Education	.09	−.09
Traumatic life events	.26	.02
Violence severity	.40	.09
Perception of danger	.13	.18*
Helplessness	−.34***	−.18
Future control	−.06	.03
Peer support	.17*	.37***

Note. PTSD = posttraumatic stress disorder.
* $p < .05$. *** $p < .001$.

Table 2
Multivariate Analysis of Depression-Change and PTSD-Change

Independent variable	PTSD-change *b*	PTSD-change *SD b*	PTSD-change *Beta*	Independent variable	Depression-change *b*	Depression-change *SD b*	Depression-change *Beta*
Step 1	R^2 = .34, adjusted R^2 = .31			Step 1	R^2 = .57, adjusted R^2 = .55		
PTSD upon entrance	.60	.08	.55***	Depression upon entrance	.81	.07	.74***
Arab ethnicity	−.40	.14	−.23**	Arab ethnicity	−.45	.21	−.14*
Russian ethnicity	−.11	.12	−.07	Russian ethnicity	−.15	.18	−.05
Ethiopian ethnicity	−.19	.14	−.11	Ethiopian ethnicity	−.09	.21	−.03
Age	.01	.01	−.07	Age	.002	.008	.02
Education	.01	.02	.04	Education	−.002	.02	−.005
Step 2	R^2 = .51, adjusted R^2 = .47			Step 2	R^2 = .68, adjusted R^2 = .66		
PTSD upon entrance	.63	.07	.58***	Depression upon entrance	.81	.06	.74***
Arab ethnicity	−.29	.13	−.17*	Arab ethnicity	−.34	.18	−.16*
Russian ethnicity	−.08	.11	−.05	Russian ethnicity	−.03	.16	−.01
Ethiopian ethnicity	−.11	.13	−.06	Ethiopian ethnicity	−.02	.17	.01
Age	−.004	.01	−.05	Age	.01	.01	.03
Education	.01	.01	.04	Education	.003	.02	.01
Perception of danger	.02	.02	.08	Perception of danger	.04	.02	.09
Helplessness	−.31	.05	−.40***	Helplessness	−.34	.07	−.24***
Future control	−.03	.05	−.04	Future control	.03	.07	.02
Peer support	.10	.06	.11	Peer support	.34	.09	.20***
Step 3	R^2 = .52, adjusted R^2 = .48			Step 3	R^2 = .70, adjusted R^2 = .67		
PTSD upon entrance	.58	.08	.53***	Depression upon entrance	.77	.06	.70***
Arab ethnicity	−.25	.13	−.15*	Arab ethnicity	−.27	.18	−.09
Russian ethnicity	−.07	.11	−.05	Russian ethnicity	−.003	.16	−.001
Ethiopian ethnicity	−.14	.14	−.08	Ethiopian ethnicity	.01	.19	.06
Education	.01	.01	.05	Education	.001	.02	.004
Age	−.004	.01	−.01	Age	.005	.007	.03
Perception of danger	.02	.02	.06	Perception of danger	.03	.02	.08
Helplessness	−.29	.05	−.37***	Helplessness	−.26	.08	−.18**
Future control	−.03	.05	−.04	Future control	.05	.07	.07
Peer support	.05	.06	.06	Peer support	.32	.09	.20***
Depression change	.08	.04	.14*	PTSD change	.25	.10	.14**

Note. PTSD = posttraumatic stress disorder.
* $p < .05$. ** $p < .01$. *** $p < .001$.

p = .000. As can be seen, demographic variables such as age and education were not correlated with either depression-change or PTSD-change. Neither the severity of the violence nor the different forms of violence were significantly correlated with either of the dependent variables; however, perceived danger was found to be significantly and positively correlated with depression-change, r = .18, p = .03. Furthermore, feeling helpless was found to be negatively correlated with PTSD-change, r = −.34, p = .000. In addition, peer group support was found to be positively correlated with depression-change, r = .37, p = .000, and with PTSD-change, r = .17, p = .036. Duration of residency as a time factor was measured, and no significant correlation was found with the study's variables.

Multivariate Analysis

The contribution of study variables to PTSD-change. The first regression, designed to explore the contribution made by changes in depression to PTSD-change, explained 48% of the variance, R^2 = .48. The first step accounted for 31% of the variance, adjusted R^2 = .31, in which PTSD upon entrance to the shelter, β = .55, contributed significantly to PTSD-change, while Arab ethnicity, β = −.23, contributed negatively. The second step accounted for 16% of the variance, adjusted R^2 = .47. Among the variables that were entered in the second step (i.e., perceived risk to life, feeling helpless, sense of future control, and peer group support), only feeling helpless contributed negatively and significantly, β = −.39.

The third step accounted for an additional 1% of the variance, adjusted R^2 = .48. In this third step, depression-change, which was the dependent variable of the second regression, reached a level of significance in contributing to PTSD-change, β = .14.

The contribution of study variables to depression-change. The second regression, designed to explore the contribution made by changes in PTSD to depression-change, explained 67% of the variance. The first step accounted for 55% of the variance, adjusted R^2 = .55: Depression upon entrance, β = .74, contributed significantly to depression-change, while Arab ethnicity, β = −.14, contributed negatively. Step 2 accounted for an additional 5% of the variance, adjusted R^2 = .66, in which Arab ethnicity was no longer significant; however, feeling helpless, β = −.19, and peer support, β = .19, contributed significantly to the regression. Step 3 accounted for an additional 1% of the variance, adjusted R^2 = .67, and demonstrated a significant contribution of PTSD-change, β = .14, to change in depression. Both regressions are presented at Table 2.

Discussion

The current study aimed to investigate the mechanism underlying changes in PTSD and depression among female IPV survivors

during shelter residency. Our findings indicated a significant reduction of symptom severity in both PTSD and depression. These findings are consistent with previous studies examining changes in PTSD (Blasco-Ros, Sánchez-Lorente, & Martinez, 2010; Dutton et al., 2006; Johnson & Zlotnick, 2012) and depression (Blasco-Ros et al., 2010; Campbell, Sullivan, & Davidson, 1995). However, the level of PTSD reduction was found to be relatively moderate, a finding that perhaps may lead to speculation as to whether PTSD as a disorder demonstrates more resistance to change during shelter intervention than does depression.

The study's main goal was to explore the interrelations between changes in PTSD and changes in depression. Our findings indicated that the depression-change model, $R^2 = .67$, accounted for more variance than the PTSD-change model, $R^2 = .48$. That is, the entire model predicting depression-change—taking into account perception of danger, feeling helpless, and peer support, as well as depression-change as the change-score variable—explained more variance as a whole compared to the entire model predicting PTSD-change with the same variables and depression-change as the change-score variable.

In fact, our findings indicated an equivalent contribution of changes in PTSD and depression to changes in each other. The relative contributions of both PTSD-change to depression-change, $\beta = .14$, $p = .014$, and the contribution of depression-change to PTSD-change, $\beta = .14$, $p = .05$, were similar, contributing alike to both regressions. These findings are inconsistent with the research hypothesis. That is, within a model utilizing these specific variables (i.e., perception of danger, sense of control, and peer support), PTSD and depression demonstrated longitudinal covariant behaviors in the contribution of changes in the one to the other, rather than a precedence of one disorder over the other, which would have manifested in a greater contribution of one over the other. A similar model of covariance was seen by Stander et al. (2014) regarding combat PTSD and depression; IPV may therefore be considered a common risk factor for PTSD and other mental disorders, as well as a model proposing common biological vulnerabilities that increase the probability of comorbidity. Consequently, due to the contribution of these particular variables that are related to IPV, both PTSD and depression present covariant behavior.

Two theoretical conceptualizations may account for such longitudinal covariant behavior of PTSD and depression among shelter residents. First, as LH was found to mediate the contribution of violence to both PTSD and MDD among shelter residents (Bargai et al., 2007), it may be speculated that among female IPV survivors in shelters, PTSD and depression may covariate due to the learned helplessness trait being augmented in both disorders. Second, a neurological study (Pinna et al., 2014) exploring the comorbidity of PTSD and depression found that women coping with PTSD and MDD showed the largest cortisol waking response compared to female survivors who had only PTSD, only MDD, or neither disorder. These findings are specific to a population with similar recentness and chronicity of trauma who experienced IPV for an average duration of more than 5 years. Thus, a hypothetical account of the covariance may also be that changes in brain structure due to repeated and cumulative trauma result in similar behaviors of PTSD and depression, an account that indeed requires further examination.

Such a plausible covariance between PTSD and depression would, however, occur within a specific context of variables related to IPV. That is, as covariant behavior of PTSD and depression was found among IPV survivors, such a relationship between PTSD and depression can perhaps be better understood in this specific conceptualization. First, feeling helpless was found to contribute negatively to both PTSD-change and depression-change among shelter residents. This finding is consistent with previous studies (Bargai et al., 2007), highlighting the central role of the variable in the underlying mechanism of both disorders.

However, peer support was found to contribute significantly to the reduction only of depression symptoms (and not to PTSD-change). These findings are significant in light of the idea that peer relationships are seen as crucial in interventions for IPV dynamics (Bybee & Sullivan, 2005; Perez-Trujillo & Quintane, 2017). A meta-analysis indeed found that peer support was effective for the reduction of depression symptoms (Pfeiffer, Heisler, Piette, Rogers, & Valenstein, 2011), and one possible explanation for such effectiveness would be that peer support provides social support and positive social reinforcement, as well as the enhancement of self-esteem (Bracke, Christiaens, & Verhaeghe, 2008). The current model therefore does not confirm the hypothesis that peer support is effective for PTSD interventions, the way it is in terms of depression interventions.

A distinct and significant contribution to the prediction of change in PTSD during shelter residency was identified among women of Arab ethnicity. A possible explanation for this finding may be attributed to characteristics of Arab society. Arab ethnicity is characterized by patriarchal norms that tend to justify violence against women (Haj-Yahia, 2002). It is not only traditional Arab norms that view a wife's obedience as a measure of a man's honor; it is also the tribal nature of Arab society in general that motivates the entire family, and not just the husband, to enforce a woman's obedience, and violations of social norms often result in retaliations and even, sometimes, in the killing of women (Al-Badayneh, 2012). Therefore, Arab women coping with severe IPV live in extreme circumstances. It is possible that the radical transition from such surroundings to the safety of a shelter may account for a more drastic change in PTSD among women of Arab ethnicity compared to that of women of other ethnicities.

It should be noted that Ethiopian culture bears some similarities to Arab culture in terms of characteristics regarding violence (Eyal-Assael, 2012). Thus, it would be reasonable to expect that findings regarding PTSD-change among women of Ethiopian ethnicity during shelter residency would be similar to those of women of Arab ethnicity. However, in a previous study, it was found that female violence survivors of Ethiopian ethnicity had lower PTSD levels in comparison to women of other ethnic origins (Dekel, Shaked, Ben-Porat, & Itzhaky, 2019). Dekel et al. (2019) ascribed these low PTSD levels among Ethiopian women to the possibility that the measurement instrument did not adequately reflect the customary idioms and nuances of Ethiopian culture. Nevertheless, it is still possible that women from strict patriarchal cultures may demonstrate a more radical change in PTSD under the safe conditions provided in shelters compared with women of other ethnicities, and such a hypothesis should be further studied. It should be added that differences in the reduction of PTSD levels between Arab and Ethiopian ethnicities may also be attributed to Israeli

shelters' lower capacity for cultural sensitivity to PTSD survivors of Ethiopian ethnicity.

Conclusions

The current study's contribution is in identifying a covariant longitudinal relation between PTSD and depression within the context of variables related to IPV. That is, within this particular phenomenon, PTSD and depression may covariate along time. Second, the contribution of the current study is in its emphasis on the importance of targeting both PTSD and depression among shelter residents in order to design preventive interventions, given that both disorders contribute equally to changes in one another. Thus, identifying and addressing both disorders among IPV survivors is crucial. We would suggest that addressing one without addressing the other within the intervention's design would likely be less productive for promoting changes in mental health. However, we would also suggest that peer support may contribute more effectively to the reduction of depression alone: another factor to be taken into consideration when designing an intervention.

The current study has four limitations. First, our findings are valid within a specific model, with the application of specific variables. The variables that comprise the model are inherent to a specific conceptualization of IPV, and it is indeed quite possible that the covariant behavior of PTSD and depression that was found in this study might not be found in regard to some other phenomenon. In addition, these findings were found during women's shelter stays and might not be replicated after their departure from the shelters when they are once again living in the community. Additional studies should therefore be conducted among female violence survivors in the aftermath of their departure from the shelters. Additional studies would also broaden our knowledge regarding the interrelations between PTSD and depression in different domains. The study's findings may also not necessarily be reflective of the larger population of individuals experiencing IPV, as shelter residents were found to differ in ethnographic background from, to rely to a greater extent on public income than, and to have lower employment rates than the IPV population who did not apply for shelter services and, moreover, to report more physical violence than did the IPV population who did not apply for shelter services (Grossman & Lundy, 2011). Furthermore, the contribution of shelter intervention to changes in PTSD and depression can only be defined with a high degree of certainty via a randomized controlled trial and with a comparison to a control group not residing in shelters. In addition, our findings indicate that neither the severity of the violence nor the different forms of violence were significantly correlated with either of the dependent variables. Yet measuring violence severity by frequency of violent experiences may not be sufficiently accurate, as frequency does not necessarily indicate severity. As a result, measuring the different forms of violence via alternative operationalizations may also lead to significant differences in the contribution of these variables (i.e., forms of violence) to the dependent variables, contradicting our finding. Therefore, more research must be conducted—operationalizing violence severity in other ways—to increase the understanding of the etiological role of violence in PTSD and depression occurrence. Finally, the findings of the current study make clear the need for further research to be conducted among abused women from traditional and patriarchal collective societies, such as Arab and Ethiopian cultures.

The current study has several notable clinical implications. For instance, we would suggest that during IPV interventions, mutual changes in PTSD and depression symptoms should be monitored so as to enhance the effectiveness of these interventions. We would also suggest differentiating between the contribution that peer support makes to the reduction of depression symptoms, versus the contribution it makes to reducing PTSD symptoms, and design individual therapy along with group therapy accordingly. In addition, a parallel course of treatment should be coordinated. Finally, designing a culturally sensitive intervention seems crucial in terms of effectively helping female IPV survivors who report PTSD; such an intervention would take into account the culturally specific nuances and emotional expressions that surely color the experiences of these survivors.

References

Al-Badayneh, D. M. (2012). Violence against women in Jordan. *Journal of Family Violence, 27,* 369–379. http://dx.doi.org/10.1007/s10896-012-9429-1

Alexander, P. C. (2009). Childhood trauma, attachment, and abuse by multiple partners. *Psychological Trauma: Theory, Research, Practice, and Policy, 1,* 78–88. http://dx.doi.org/10.1037/a0015254

Allison, P. D. (1990). Change scores as dependent variables in regression analysis. *Sociology Methodology, 20,* 93–114. http://dx.doi.org/10.2307/271083

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.

Astin, M. C., Ogland-Hand, S. M., & Foy, D. W. (2002). Trauma symptoms in preschool-age children exposed to domestic violence. *Journal of Interpersonal Violence, 17,* 150–164.

Bargai, N., Ben-Shakhar, G., & Shalev, A. Y. (2007). Posttraumatic stress disorder and depression in battered women: The mediating role of learned helplessness. *Journal of Family Violence, 22,* 267–275. http://dx.doi.org/10.1007/s10896-007-9078-y

Biehn, T. L., Contractor, A., Elhai, J. D., Tamburrino, M., Fine, T. H., Prescott, M. R., . . . Galea, S. (2013). Relations between the underlying dimensions of PTSD and major depression using an epidemiological survey of deployed Ohio National Guard soldiers. *Journal of Affective Disorders, 144*(1–2), 106–111. http://dx.doi.org/10.1016/j.jad.2012.06.013

Blasco-Ros, C., Sánchez-Lorente, S., & Martinez, M. (2010). Recovery from depressive symptoms, state anxiety and post-traumatic stress disorder in women exposed to physical and psychological, but not to psychological intimate partner violence alone: A longitudinal study. *BMC Psychiatry, 10,* 98. http://dx.doi.org/10.1186/1471-244X-10-98

Bracke, P., Christiaens, W., & Verhaeghe, M. (2008). Self-esteem, self-efficacy, and the balance of peer support among persons with chronic mental health problems. *Journal of Applied Social Psychology, 38,* 436–459. http://dx.doi.org/10.1111/j.1559-1816.2008.00312.x

Breslau, N., Davis, G. C., Peterson, E. L., & Schultz, L. R. (2000). A second look at comorbidity in victims of trauma: The posttraumatic stress disorder – major depression connection. *Biological Psychiatry, 48*(9), 902–909. http://dx.doi.org/10.1016/S0006-3223(00)00933-1

Briere, J., & Jordan, C. E. (2009). Childhood maltreatment, intervening variables, and adult psychological difficulties in women: An overview. *Trauma, Violence & Abuse, 10,* 375–388. http://dx.doi.org/10.1177/1524838009339757

Bybee, D. I., & Sullivan, C. M. (2002). The Process Through Which an Advocacy Intervention Resulted in Positive Change for Battered Women over Time. *American Journal of Community Psychology, 30,* 103–132. http://dx.doi.org/10.1023/A:1014376202459

Bybee, D. I., & Sullivan, C. M. (2005). Predicting re-victimization of battered women 3 years after exiting a shelter program. *American Journal of Community Psychology, 36,* 85–96.

Campbell, J. C., Webster, D. W., & Glass, N. (2009). The Danger Assessment: Validation of a Lethality Risk Assessment Instrument for Intimate Partner Femicide. *Journal of Interpersonal Violence, 24,* 653–674. http://dx.doi.org/10.1177/0886260508317180

Campbell, R., Sullivan, C. M., & Davidson, W. S., II. (1995). Women who use domestic violence shelters: Changes in depression over time. *Psychology of Women Quarterly, 19,* 237–255. http://dx.doi.org/10.1111/j.1471-6402.1995.tb00290.x

Cannon, C., Hamel, J., Buttell, F., & Ferreira, R. J. (2016). A survey of domestic violence perpetrator programs in the United States and Canada: Findings and implications for policy and intervention. *Partner Abuse, 7,* 226–276. http://dx.doi.org/10.1891/1946-6560.7.3.226

Clevenger, B. J. M., & Roe-Sepowitz, D. (2009). Shelter Service Utilization of Domestic Violence Victims. *Journal of Human Behavior in the Social Environment, 19*(4), 359–374. http://dx.doi.org/10.1080/10911350902787429

Coker, A. L., Watkins, K. W., Smith, P. H., & Brandt, H. M. (2003). Social support reduces the impact of partner violence on health: application of structural equation models. *Preventive Medicine, 37,* 259–267.

Davidson, L., Chinman, M., Sells, D., & Rowe, M. (2006). Peer support among adults with serious mental illness: A report from the field. *Schizophrenia Bulletin, 32,* 443–450. http://dx.doi.org/10.1093/schbul/sbj043

Dekel, R., Shaked, O. Z., Ben-Porat, A., & Itzhaky, H. (2019). Posttraumatic stress disorder upon admission to shelters among female victims of domestic violence: an ecological model of trauma. *Violence and Victims, 34,* 329–345.

Derogatis, L. R. (1992). The brief symptom inventory (BSI): Administration, scoring & procedures manual-II (2nd ed.). Maryland: Author.

Dutton, M. A., Green, B. L., Kaltman, S. I., Roesch, D. M., Zeffiro, T. A., & Krause, E. D. (2006). Intimate partner violence, PTSD, and adverse health outcomes. *Journal of Interpersonal Violence, 21,* 955–968. http://dx.doi.org/10.1177/0886260506289178

Eckhardt, C. I., Murphy, C. M., Whitaker, D. J., Sprunger, J., Dykstra, R., & Woodard, K. (2013). The effectiveness of intervention programs for perpetrators and victims of intimate partner violence. *Partner Abuse, 4,* 196–231. http://dx.doi.org/10.1891/1946-6560.4.2.196

Eisikovits, Z., Winstok, Z., & Fishman, G. (2004). The First Israeli National Survey on Domestic Violence. *Violence Against Women, 10,* 729–748. http://dx.doi.org/10.1177/1077801204265549

Emery, V. O., Emery, P. E., Shama, D. K., Quiana, N. A., & Jassani, A. K. (1991). Predisposing variables in PTSD patients. *Journal of Traumatic Stress, 4,* 325–343. http://dx.doi.org/10.1007/bf00974553

Eyal-Assael, V. (2012). Misunderstandings, conflicts and violence in families of immigrants from Ethiopia. In N. Grisaru & E. Witztum (Eds.), *Social, cultural and clinical aspects of Ethiopian immigrants in Israel* (pp. 179–205). Beer-Sheva, Israel: Ben-Gurion University (Hebrew).

Field, A. (2009). Discovering statistics using SPSS and sex and drugs and rock'n'roll. Los Angeles, CA: Sage.

Foa, E. B., Zinbarg, R., & Rothbaum, B. O. (1992). Uncontrollability and unpredictability in post-traumatic stress disorder: An animal model. *Psychological Bulletin, 112,* 218–238. http://dx.doi.org/10.1037/0033-2909.112.2.218

Gal, R. (1994). People under scuds: Reactions of the Israeli population to the missile attacks during the Gulf War. *Psychologia: Israel Journal of Psychology, 4,* 182–192.

Gilbar, O., & Ben-Zur, H. (2002). Adult Israeli community norms for the Brief Symptom Inventory (BSI). *International Journal of Stress Management, 9,* 1–10. http://dx.doi.org/10.1023/A:1013097816238

Golding, J. M. (1999). Intimate Partner Violence as a Risk Factor for Mental Disorders: A Meta-Analysis. *Journal of Family Violence, 14,* 99–132. http://dx.doi.org/10.1023/A:1022079418229

Graham-Berman, S. A., & Levendosky, A. A. (1998). Traumatic stress symptoms in children of battered woman. *Journal of Interpersonal Violence, 13,* 111–128.

Grossman, S. F., & Lundy, M. (2011). Characteristics of women who do and do not receive onsite shelter services from domestic violence programs. *Violence Against Women, 17,* 1024–1045. http://dx.doi.org/10.1177/1077801211414169

Haj-Yahia, M. M. (2002). Attitudes of Arab women toward different patterns of coping with wife abuse. *Journal of Interpersonal Violence, 17,* 721–745. http://dx.doi.org/10.1177/0886260502017007002

Harvey, M. R. (1996). An ecological view of psychological trauma and trauma recovery. *Journal of Traumatic Stress, 9,* 3–23. http://dx.doi.org/10.1007/BF02116830

Harvey, M. R., Liang, B., Harney, P. A., Koenen, K., Tummala-Narra, P., & Lebowitz, L. (2003). A multidimensional approach to the assessment of trauma impact, recovery and resiliency. *Journal of Aggression Maltreatment & trauma, 6,* 87–109.

Hobfoll, S.-E., & Walfisch, S. (1984). Coping with a threat to life: A Longitudinal study of self- concept, social support, and psychological distress. *American Journal of Community Psychology, 12,* 87–100. http://dx.doi.org/10.1007/bf00896930

Hoffman, B. M., Zevon, M. A., D'Arrigo, M. C., & Cecchini, T. B. (2004). Screening for distress in cancer patients: The NCCN rapid-screening measure. *Psycho-Oncology, 13,* 792–799. http://dx.doi.org/10.1002/pon.796

Johnson, D. M., Delahanty, D. L., & Pinna, K. (2008). The cortisol awakening response as a function of PTSD severity and abuse chronicity in sheltered battered women. *Journal of Anxiety Disorders, 22,* 793–800.

Johnson, D. M., & Zlotnick, C. (2012). Remission of PTSD after victims of intimate partner violence leave a shelter. *Journal of Traumatic Stress, 25,* 203–206. http://dx.doi.org/10.1002/jts.21673

Johnson, D. M., Zlotnick, C., & Perez, S. (2011). Cognitive behavioral treatment of PTSD in residents of battered women's shelters: Results of a randomized clinical trial. *Journal of Consulting and Clinical Psychology, 79,* 542–551. http://dx.doi.org/10.1037/a0023822

Jonker, I. E., Sijbrandij, M., Van Luijtelaar, M. J. A., Cuijpers, P., & Wolf, J. R. L. M. (2015). The effectiveness of interventions during and after residence in women's shelters: A meta-analysis. *European Journal of Public Health, 25,* 15–19. http://dx.doi.org/10.1093/eurpub/cku092

Kelly, U. (2010). Intimate partner violence, physical health, posttraumatic stress disorder, depression, and quality of life in latinas. *The Western Journal of Emergency Medicine, 11,* 247–251.

Lakey, B., & Cohen, S. (2000). Social Support Theory and Measurement. *Social Support Measurement and Interventions: A Guide for Health and Social Scientists*. Advanced online publication. http://dx.doi.org/10.1093/med:psych/9780195126709.003.0002

Lilly, M. M., Howell, K. H., & Graham-Bermann, S. (2015). World Assumptions, Religiosity, and PTSD in Survivors of Intimate Partner Violence. *Violence Against Women, 21,* 87–104. http://dx.doi.org/10.1177/1077801214564139

Little, T. D. (2012). *Longitudinal structural equation models*. New York, NY: Guilford. http://dx.doi.org/10.1002/9781118358887

Maier, S. F. (1984). Learned helplessness and animal models of depression. *Progress in Neuro-Psychopharmacology and Biological Psychiatry, 8,* 435–446. http://dx.doi.org/10.1016/S0278-5846(84)80032-9

Mertin, P., & Mohr, P. B. (2001). A follow-up study of posttraumatic strss disorder, anxiety and depression, in Australian victims of domestic violence. *Violence and Victims, 16,* 545–654.

Nicholls, T. L., & Hamel, J. (2015). Intimate partner violence. In B. L. Cutler & P. A. Zapf (Eds.), APA handbooks in psychology®. *APA handbook of forensic psychology, Individual and situational influences in criminal and civil contexts* (Vol. 1, pp. 381–422). Washington, DC: American Psychological Association. http://dx.doi.org/10.1037/14461-012

Nixon, R. D. V., Resick, P. A., & Nishith, P. (2004). An exploration of comorbid depression among female victims of intimate partner violence with posttraumatic stress disorder. *Journal of Affective Disorders, 82,* 315–320. http://dx.doi.org/10.1016/j.jad.2004.01.008

Paris, J., & Phillips, J. (2013). *Making the DSM-5 Concepts and Controversies*. New York, NY: Springer.

Pearlin, L. I., & Schooler, C. (1978). The Structure of Coping. *Journal of Health and Social Behavior, 19,* 2–21.

Perez-Trujillo, M., & Quintane, E. (2017). Why do they Stay? Examining Contributing Factors to Women's Length of Stay in a Domestic Violence Shelter. *Journal of Family Violence, 32,* 89–100. http://dx.doi.org/10.1007/s10896-016-9904-1

Peterson, K. (2013). Learned resourcefulness, danger in intimate partner relationships, and mental health symptoms of Depression and PTSD in abused women. *Issues in Mental Health Nursing, 34,* 386–394. http://dx.doi.org/10.3109/01612840.2013.771233

Pfeiffer, P. N., Heisler, M., Piette, J. D., Rogers, M. A. M., & Valenstein, M. (2011). Efficacy of peer support interventions for depression: A meta-analysis. *General Hospital Psychiatry, 33,* 29–36. http://dx.doi.org/10.1016/j.genhosppsych.2010.10.002

Pinna, K. L. M., Johnson, D. M., & Delahanty, D. L. (2014). PTSD, comorbid depression, and the cortisol waking response in victims of intimate partner violence: Preliminary evidence. *Anxiety, Stress & Coping: An International Journal, 27,* 253–269. http://dx.doi.org/10.1080/10615806.2013.852185

Ranz, R., Dekel, R., & Izhaky, H. (2012). FSU-born and Israeli-born users in therapeutic communities for drug abusers. *Social & Welfare, 32,* 169–188.

Salcioglu, E., Urhan, S., Pirinccioglu, T., & Aydin, S. (2017). Anticipatory fear and helplessness predict PTSD and depression in domestic violence survivors. *Psychological Trauma: Theory, Research, Practice, and Policy, 9,* 117–125. http://dx.doi.org/10.1037/tra0000200

Solomon, Z. (1995). The Effect of Prior Stressful Experience on Coping with war Trauma and Captivity. *Psychological Medicine, 25,* 1289–1294. http://dx.doi.org/10.1017/S0033291700033250

Solomon, Z., Dekel, R., & Zerach, G. (2008). The relationships between posttraumatic stress symptom clusters and marital intimacy among war veterans. *Journal of Family Psychology, 22,* 659–666. http://dx.doi.org/10.1037/a0013596

Solomon, Z., & Horesh, D. (2007). Changes in diagnostic criteria of PTSD: Implications from two prospective longitudinal studies. *The American Journal of Orthopsychiatry, 77,* 182–188. http://dx.doi.org/10.1037/0002-9432.77.2.182

Stander, V. A., Thomsen, C. J., & Highfill-McRoy, R. M. (2014). Etiology of depression comorbidity in combat-related PTSD: A review of the literature. *Clinical Psychology Review, 34,* 87–98. http://dx.doi.org/10.1016/j.cpr.2013.12.002

Sullivan, C. M. (2018). Understanding How Domestic Violence Support Services Promote Survivor Well-being: A Conceptual Model. *Journal of Family Violence, 33,* 123–131. http://dx.doi.org/10.1007/s10896-017-9931-6

Thoits, P. A. (2011). Mechanisms Linking Social Ties and Support to Physical and Mental Health. *Journal of Health and Social Behavior, 52,* 145–161. http://dx.doi.org/10.1177/0022146510395592

Walker, E. A. (2017). *The Battered Woman Syndrome*. 4th ed. New York, NY: Springer Publishing Company.

Watson, D. (2005). Rethinking the mood and anxiety disorders: A quantitative hierarchical model for DSM-V. *Journal of Abnormal Psychology, 114,* 522–536. http://dx.doi.org/10.1037/0021-843X.114.4.522

Yalom, I. D. (1995). The theory and practice of group psychotherapy. Basic books (AZ).

Received July 24, 2019
Revision received March 4, 2020
Accepted March 12, 2020 ■