

## RESEARCH ARTICLE

# The mental health of forcibly displaced couples

Harem Nareeman Mahmood<sup>1,3</sup>  | Hawkar Ibrahim<sup>1,2</sup> | Azad Ali Ismail<sup>3</sup> | Frank Neuner<sup>1,2</sup>

<sup>1</sup>Department of Psychology, Clinical Psychology, and Psychotherapy, Bielefeld University, Bielefeld, Germany

<sup>2</sup>vivo international, Konstanz, Germany

<sup>3</sup>Department of Clinical Psychology, Faculty of Science and Health, Koya University, Koy Sanjaq, Iraq

## Correspondence

Harem Nareeman Mahmood, Department of Psychology, Clinical Psychology, and Psychotherapy, Bielefeld University, Universitätsstraße 25, 33501 Bielefeld, Germany.

Email: [harem@uni-bielefeld.de](mailto:harem@uni-bielefeld.de)

The study was funded by the Volkswagen Foundation (91474-1). The funding body had no role in study design, data collection, analysis, publication decision, or manuscript preparation. The authors express their gratitude to the participants who took part in the study.

## Abstract

Most current research investigating traumatic stress is focused on its effects at the individual level, utilizing the implicit assumption that trauma-related disorders are mutually independent within families and communities. However, there is reason to assume that trauma-related symptoms within couples are influenced by each partner's risk factors and symptoms. Using the actor-partner interdependence model, this study aimed to test whether symptoms of posttraumatic stress disorder (PTSD) and depression were predicted by participants' partner's exposure to traumatic events over and above the influence of the participant's own experiences. For this purpose, we interviewed 687 heterosexual, married Iraqi and Syrian couples in Iraq's Kurdistan region who had been forcefully displaced. We assessed symptoms of PTSD and depression using locally validated scales. Nearly all participants (98.8%) reported exposure to at least one traumatic event, with husbands reporting exposure to a higher number of traumatic events than wives,  $d = 0.48$ ,  $p < .001$ . More than half of the participants met the criteria for a probable PTSD (61.1%) or major depressive disorder diagnosis (60.4%). Within couples, significant actor effects of experienced trauma exposure on personal PTSD and depressive symptoms were observed for both husbands and wives. Further, there were significant partner effects of wives' traumatic experiences on husbands' PTSD and depressive symptoms as well as of husbands' traumatic experiences on wives' PTSD and depressive symptoms. The findings argue for the interdependence of trauma-related symptoms within dyads in a dual-trauma context, suggesting the presence of intracouple transmission of trauma-related symptoms.

Forced migration has been one of the most consistent, prominent characteristics of humanitarian crises (Kaya et al., 2019). According to the United Nations High Commissioner for Refugees (UNHCR), by the end of 2019, the number of individuals forcibly displaced due to war and conflict reached more than 79,500,000 million worldwide (UNHCR, 2020). There are many ways war negatively

influences mental health (Blain et al., 2010; Kaya et al., 2019) through conflict-related experiences, such as forced displacement and exposure to multiple traumatic events, including the loss of loved ones, torture, and witnessing the killing of others (Buhmann, 2014). A growing body of literature indicates that displaced people are more vulnerable to posttraumatic stress disorder (PTSD), depression,

This is an open access article under the terms of the [Creative Commons Attribution-NonCommercial-NoDerivs](https://creativecommons.org/licenses/by-nc-nd/4.0/) License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

© 2022 The Authors. *Journal of Traumatic Stress* published by Wiley Periodicals LLC on behalf of International Society for Traumatic Stress Studies.

and anxiety (Bogic et al., 2015; Buhmann, 2014; Fazel et al., 2005; Fegert et al., 2018; Hameed et al., 2018; Kartal & Kiroopoulos, 2016; Kirmayer et al., 2011; Riggs, 2014; Steel et al., 2009). Based on a meta-analysis among individuals who experienced war between 1989 and 2015, worldwide 354,000,000 adult war survivors are likely to have PTSD and/or major depression (Hoppen & Morina, 2019).

Although to date, epidemiological research has generally focused on population-level information, some researchers have emphasized the role of other socioecological levels, most prominently the familial context (Idstad et al., 2010). Extending the observations beyond the individual level is warranted given the evidence that the cumulative effects of trauma exposure on families exceed the sum of the individual effects (Dorrington et al., 2019). In particular, it is likely that trauma-related psychopathology has an impact on interactions between family members, which, in turn, contributes to the aggravation of individual symptom levels. For example, studies have demonstrated that exposure to war-related trauma is associated with increased parental violence against children (Catani, 2010, 2018; Saile et al., 2015). In addition to war exposure, though, family violence is one of the main predictors of symptoms in war-affected children (Catani et al., 2008). Taken together, the impacts of war trauma on both the individual and family system levels indicate a severe risk of psychopathology among war-affected youth, in particular.

Within intimate couples, studies have indicated that traumatic events not only affect individual survivors but, indirectly, their unaffected partners as well (Dekel, 2007; Dekel & Monson, 2010). Individuals who have not been directly exposed to a traumatic incident may develop a set of symptoms and reactions consistent with a trauma response, including nightmares, hyperarousal, intrusive thoughts, avoidance, and flashbacks (Figley, 1995; Zimering & Gulliver, 2004). This form of symptom transmission between partners has been referred to as *secondary trauma* (Bramsen et al., 2002; Crowe, 2004; Galovski & Lyons, 2004; Gilbar et al., 2012). This effect may be even more complex in cases where both partners have been exposed to traumatic events, wherein symptom transmission is not unidirectional but rather bidirectional, a condition referred to as *dual trauma* (Balcom, 1996). The experiences of dual-trauma couples have received little attention in the literature. In cases where both partners have been exposed to a potentially traumatic event or events, both primary and secondary trauma might impact each individual. As a consequence, each partner's symptoms could be influenced not only by their own trauma history but also by their partner's experiences and symptoms (Riggs, 2014). Although most previous studies have focused on predictors in individual survivors or the vul-

nerability to victimization in one's spouse (Bramsen et al., 2002; Miller et al., 2013), survivors' mental health in dual-trauma relationships could be at higher risk relative to couples in which one spouse or partner has suffered trauma.

Marriage is a long-term legal, social, and emotional connection between two partners that involves a range of interdependencies; thus, it is unsurprising that a change in one partner's mental health may affect that of the other (Arzhi et al., 2000). Such mutual transmission of post-traumatic sequelae may exacerbate each partner's mental health through escalating dysfunctional interactions and high levels of relationship distress (Dekel & Monson, 2010). When both partners have been traumatized, spouses may support one another to minimize trauma-related symptoms (Bramsen et al., 2002), but the possibility of exacerbating each other's symptoms has been shown to be more likely to happen (Nelson Goff et al., 2014). The complexity of dual-trauma couples is illustrated by the *couple adaptation to traumatic stress* model (Nelson Goff & Smith, 2005). This model assumes that both partners' adaption to traumatic stress is determined by the interaction between individual risk factors, family resources, and the level of interpersonal functioning of the partnership (see also Oseland et al., 2016).

In addition to the mutual transmission of symptoms between couples, several individual and shared risk factors may determine mental health status, such as the number of traumatic events an individual has experienced, age, and participant gender. Notably, survivors' trauma load should be considered, as several studies have reported that the number of experienced traumatic event types and stress events is one of the most significant predictors of mental health disorders among displaced and refugee populations (Acarturk et al., 2018; Georgiadou et al., 2018; Mahmood et al., 2019; Steel et al., 2009). Less clear, however, is the association between age and mental health outcomes, and previous studies among Syrian refugees have found inconsistent results (Georgiadou et al., 2018; Tinghög et al., 2017). This inconsistency may be occurring, at least in part, because age is often confounded with the time since traumatic event exposure and the duration of exposure to risk factors. Prior research among displaced people and refugees has also offered inconclusive results regarding differences in the prevalence rates of common mental disorders, including PTSD and depression, between men and women. For example, in a recent systematic review and meta-analysis of research in conflict-affected populations, Charlson et al. (2019) found that, although the prevalence rates of PTSD and depression were higher in women than men, the difference was only significant for depression.

The current study attempted to extend the field's understanding of couples' mental health in likely dual-trauma

conditions, wherein both partners present with a history of war exposure and forced displacement. Given the high levels of trauma exposure in current conflicts (Peconga & Høgh Thøgersen, 2019), such a condition may be the standard rather than the exception in recent war-affected populations. Previous research on trauma and mental health among war survivors, particularly in the Middle East, has primarily focused on the posttraumatic reactions at the individual level (e.g., Alpak et al., 2015; AlShawi, 2018; Blackmore et al., 2020; Hoppen & Morina, 2019; Kirmayer et al., 2011; Steel et al., 2009). As a result, scientific knowledge of couples' mental health is limited with regard to relationships in which both partners have experienced trauma. Based on Nelson Goff and Smith's (2005) "couple adaptation to traumatic stress" model and integrated knowledge about traumatized couples (e.g., Bramsen et al., 2002), we assumed that psychopathology symptoms within couples would be interdependent. In particular, we hypothesized that beyond individual and shared risk factors, wives' trauma exposure would predict their husband's levels of PTSD and depression and vice versa. We tested this hypothesis using the actor-partner interdependence model (APIM) applied to data collected as part of a clinical survey among refugees and internally displaced people living in the Kurdistan Region of Iraq (KRI). APIM is a conceptual model of dyadic data that allows researchers to test the effect of one person's own risk factors on their symptoms (actor effect) as well as the effect of one partner's risk factors on their spouse's symptoms (Gistelinck & Loeyts, 2019; Kenny & Cook, 1999; Kenny & Kashy, 2014). Using this framework, we hypothesized that one partner's trauma exposure levels would significantly predict PTSD and depressive symptoms in the other partner over and above the effects of the individual's risk factors.

## METHOD

### Participants and procedure

As a part of a collaborative research project between Bielefeld University in Germany and Koya University in KRI, between December 2016 and October 2018, locally trained clinical psychologists and social workers interviewed 687 heterosexual married Iraqi and Syrian couples who were forcibly displaced from their home regions to Arbat Camps in Sulaymaniyah Governorate in the KRI. Based on a pragmatic sampling approach, the trained local team interviewed couples, with partners interviewed simultaneously in separate rooms in their tent. Because many participants in the study population were skeptical of any signature on any document, mandatory documented verbal consent was applied. At the end of each interview, the

interviewers assessed the need for psychological support and made referrals if necessary. Two experienced clinical psychologists and trained social workers supervised the fieldwork and managed the data collection process. More details regarding sampling procedures, safety mechanisms for participants and interviewers, and the data collection process are described elsewhere (Goessmann et al., 2019; Ibrahim et al., 2018a, 2018b, 2019; Mahmood et al., 2019). All study procedures and ethical considerations were approved by the Ethical Committee of Bielefeld University in Germany and the Ethical Committee of Koya University in the KRI. The vast majority of the sample (96.1%) was Muslim-Sunni; 72.0% of participants were refugees from Syria, and the rest were internally displaced Iraqis. Regarding ethnicity, almost all of the participants (95.3%) were Kurds, and all others were Arabs. Table 1 depicts the characteristics of the sample.

## Measures

### Demographic characteristics

Participants provided detailed sociodemographic information and were asked questions regarding their background and life experiences with war and displacement.

### Traumatic experiences

To assess participants' experiences of common war-related and non-war-related traumatic events, the Kurdish Kurmanji and Arabic version of the War and Adversity Exposure Checklist (WAEC; Ibrahim et al., 2018a) was used. The checklist was developed for Middle Eastern populations and consists of items derived from the War Exposure Scale (Ibrahim et al., 2018b), the Life Events Checklist (LEC-5) for the *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)* (Weathers et al., 2013), and focus group interviews with forcibly displaced people in Iraq (see Ibrahim et al., 2018a). The checklist consisted of items reflecting 26 war-related and general traumatic life events, with two response options ("yes" or "no") for each item. Trauma exposure scores were calculated by summing "yes" responses, with a maximum score of 26. In the present sample, internal consistency was acceptable, Cronbach's  $\alpha = .76$ .

### PTSD symptoms

PTSD symptoms were assessed using the Kurdish Kurmanji and Arabic versions of the PTSD Checklist for

TABLE 1 Sample demographic and displacement characteristics

Variable	Total sample ( <i>N</i> = 1,374)		Husbands ( <i>n</i> = 678)		Wives ( <i>n</i> = 678)		<i>p</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Age (years)	35.64	11.03	38.12	11.44	33.16	10.63	< .001
Age at marriage (years)	23.36	9.14	26.47	12.18	20.36	6.1	< .001
Monthly income (IQD) <sup>a</sup>	80,398.38	201,746.68	76,577.69	192,863.84	4,140.81	37,042.34	< .001
Length of stay in camp (years) <sup>b</sup>	2.83	4.31	2.95	4.32	2.70	4.30	.333
Age when war started (years)	31.28	12.02	33.64	12.42	28.92	11.14	< .001
Formal educational attainment (years) <sup>c</sup>	5.84	4.31	6.37	4.12	5.31	4.44	< .001
Lifetime displacements <sup>d</sup>	1.52	3.83	1.66	5.33	1.38	.93	.175

Note: <sup>a</sup>Range: 0–1, 414, 000 (1,000 IQD = € 0.65).

<sup>b</sup>Range: 0–16 years.

<sup>c</sup>Range: 0–24 years.

<sup>d</sup>Range: 1–8 years.

DSM-5 (PCL-5; Weathers et al., 2013). Both versions have been validated for use with Middle Eastern populations (Ibrahim et al., 2018b). The instrument was developed based on DSM-5 diagnostic criteria for PTSD and consists of 20 self-report items (see: Ibrahim et al., 2018b). Each item was rated on a 5-point Likert scale ranging from 0 (*not at all*) to 4 (*extremely*). Based on previous findings by Ibrahim et al. (2018b), a cutoff score of 23 was determined as the optimal fit for a probable diagnosis of PTSD among Kurdish and Arab displaced populations living in the KRI. In the present sample, the internal consistency of the PCL-5 was good, Cronbach's  $\alpha = .82$ .

## Depressive symptoms

Depressive symptoms were assessed using the Depression subscale of the Kurdish Kurmanji and Arabic version of the Hopkins Symptom Checklist-15 (D-HSCL-25; Ibrahim et al., 2018b). The Depression subscale comprises 15 items rated on a 4-point scale ranging from 1 (*not at all*) to 4 (*extremely*). The scale has been used with non-Western refugee populations, and it was translated into the most commonly spoken refugee languages, such as Farsi and Arabic (Wind et al., 2017). Scores were calculated by dividing the total item score by the number of items answered. The originally proposed cutoff score of 1.75 was used in diagnosing major depressive disorder clinically (Dargère, 2014). Although the measure has not been validated or calibrated for this specific population, the D-HSCL-25 demonstrated very good internal consistency in the current sample, Cronbach's  $\alpha = .86$ .

## Data analysis

All statistical analyses were conducted using the Statistical Package for the Social Sciences (SPSS; Version 26) and IBM SPSS Amos (Version 26). Descriptive analyses, including the frequencies for the number of traumatic events experienced and couples' mean mental health symptom severity levels, were conducted to describe the characteristics of the sample. Paired sample *t* tests were utilized to identify mean differences in PTSD and depressive symptoms between couples. Spearman correlations were used to determine the possible associations between age and probable mental disorders (i.e., PTSD and depression) for husbands and wives. Cohen's *d* (Cohen, 1988) was used to determine effect sizes for paired-sample *t* tests. We checked the normality of mental health scores using exploratory data analysis. As a result of the data collection strategy, which included immediate follow-ups on any missing information, there were no remaining missing data. The APIM was analyzed using structural equation modeling with maximum likelihood estimation in IBM SPSS-Amos. APIM models are recursive and have zero degrees of freedom; therefore, model fit indices cannot be presented (Cook & Kenny, 2005; Iida et al., 2018; Kenny et al., 2006).

## RESULTS

### Traumatic experiences

Participants reported having experienced an average of 6.83 (*SD* = 3.82, range: 0–21) traumatic events. Almost all of the sample (98.8%) reported at least one traumatic experience, and more than three quarters (78.2%) reported

experiencing more than three traumatic events during their lifetime. The most frequently reported traumatic events among the participants were both war-related: forced separation from family members (67.0%), followed by witnessing fire or explosions (63.0%). A significant difference was observed between husbands ( $M = 7.92$ ,  $SD = 4.09$ ) and wives ( $M = 5.73$ ,  $SD = 3.17$ ),  $t(686) = 12.41$ ,  $p < .001$ ,  $d = 0.48$ , with regard to the number of reported traumatic experiences.

## PTSD symptoms

Participants' PTSD symptom scores ranged from 0 to 76 ( $M = 28.86$ ,  $SD = 16.60$ ). Using the validated cut-off score of 23 (Ibrahim et al., 2018b), more than half of the sample (61.1%) met the symptom criteria for probable PTSD. Husbands reported significantly higher symptom levels ( $M = 30.03$ ,  $SD = 19.79$ ) than wives ( $M = 28.30$ ,  $SD = 14.69$ ),  $t(686) = 2.07$ ,  $p = .039$ ,  $d = 0.08$ .

## Depressive symptoms

Participants' depressive symptom scores ranged 1 to 57 ( $M = 30.12$ ,  $SD = 8.99$ ). Using the original cutoff score of 1.75, 60.4% of participants met the criteria for probable major depressive disorder. The results showed that wives' levels of depressive symptoms ( $M = 31.27$ ,  $SD = 11.39$ ) were significantly higher than husbands' symptom levels ( $M = 29.55$ ,  $SD = 9.72$ ),  $t(686) = 3.38$ ,  $p < .001$ ,  $d = 0.13$ .

## Age and psychopathology

Spearman correlations showed a significant positive association between partners' probable PTSD,  $r_s = .24$ ,  $p < .001$ , and depression,  $r_s = .22$ ,  $p < .001$ . In addition, among husbands, significant positive correlations emerged between age and both probable PTSD,  $r_s = .09$ ,  $p = .020$ , and probable depression,  $r_s = .10$ ,  $p = .010$ . Likewise, among wives, we observed significant positive correlations between age and both probable PTSD,  $r_s = .22$ ,  $p < .001$ , and probable depression,  $r_s = .23$ ,  $p < .001$ .

## Interdependence of mental health symptoms

To address the effect of traumatic experiences on mental health symptoms (i.e., probable PTSD and depression), we distinguished dyad members by their role in the family (i.e., husband and wife). In the APIMs, we treated

traumatic experiences as the independent variable and probable PTSD and probable depression as the dependent variables. The results showed significant actor effects of each partner's traumatic experiences on their own PTSD symptoms,  $R^2 = .19$ ,  $\beta = .39$ ,  $p < .001$  for husbands, and  $R^2 = .15$ ,  $\beta = .36$ ,  $p < .001$ , for wives (Figure 1). Likewise, the results indicated significant partner effects of spouses' traumatic experiences on their partner's PTSD symptoms,  $\beta = .08$ ,  $p = .036$  for husbands, and  $\beta = .14$ ,  $p < .001$ , for wives. With regard to depressive symptoms, the results also showed significant actor effects of husbands' and wives' own traumatic experiences on their own depression symptoms,  $R^2 = .14$ ,  $\beta = .30$ ,  $p < .001$ , for husbands,  $R^2 = .10$ ,  $\beta = .28$ ,  $p < .001$ , for wives. Finally, the results showed significant partner effects of husbands',  $\beta = .09$ ,  $p = .036$ , and wives' traumatic experiences,  $\beta = .15$ ,  $p < .001$ , on each other's depressive symptoms (Figure 2).

## DISCUSSION

Almost all couples in refugee camps in Northern Iraq who participated in the present study reported experiencing trauma, with both members of nearly all dyads endorsing exposure to at least one traumatic event. Over three quarters of participants experienced three or more trauma types, and over half met the criteria for probable PTSD and major depressive disorder, a level consistent with previous descriptions of this population (Mahmood et al., 2019) as well as other war-affected populations (Georgiadou et al., 2018; Ibrahim et al., 2018a; Rugema et al., 2015). The findings were also within the range of prevalence rates for PTSD and depression reported in systematic reviews among refugees and displaced people (Bogic et al., 2015; Morina et al., 2018).

On the individual level, we found a pattern of risk factors consistent with the literature. Probable depression and PTSD were associated with the amount of trauma exposure an individual had experienced, confirming previous findings of a dose-effect association between cumulative trauma exposure and PTSD development (Alpak et al., 2015; Johnson & Thompson, 2008; Neuner et al., 2004). The association between age and mental health was also in line with previous studies in war-affected populations (Bogic et al., 2012; Gerritsen et al., 2006; Mahmood et al., 2019; Roberts et al., 2008). In addition, the findings indicate that the prevalence rate for probable depression was significantly higher among women than men, but the prevalence of probable PTSD was higher among men compared with women; these results are in line with those reported in a systematic review and meta-analysis among war-affected populations (Charlson et al., 2019) for depression but not PTSD.

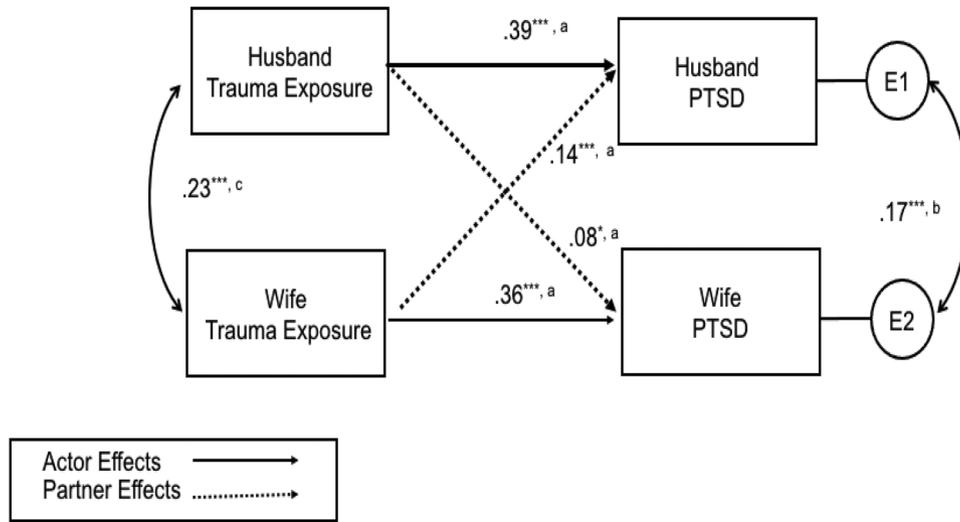


FIGURE 1 Actor-partner interdependence model for posttraumatic stress disorder (PTSD) symptoms

Note: <sup>a</sup>Standardized beta. <sup>b</sup>Correlated errors. <sup>c</sup>Factor correlation.

\* $p < .05$ ; \*\*  $p < .01$ ; \*\*\* $p < .001$ .

The main findings show that there were significant actor effects for both husbands and wives. Thus, husbands and wives who were exposed to highly traumatic events reported higher levels of depressive and PTSD symptoms. Moreover, significant partner effects were also observed, indicating that husbands and wives whose partners had experienced a high number of traumatic events were more likely to have higher levels of probable PTSD and depression even after controlling for their own trauma exposure. These findings support our hypothesis that men-

tal health symptoms among forcibly displaced couples would be interdependent. Beyond the effects of other risk factors (e.g., personal trauma exposure and age), the findings demonstrate that wives' PTSD and depressive symptoms were correlated with their husbands' traumatic experiences and vice versa. This is consistent with the assumptions of the couple adaptation to traumatic stress model (Nelson Goff & Smith, 2005), which predicts the presence of both primary and secondary trauma within the dyadic system. Previous studies have reported that one

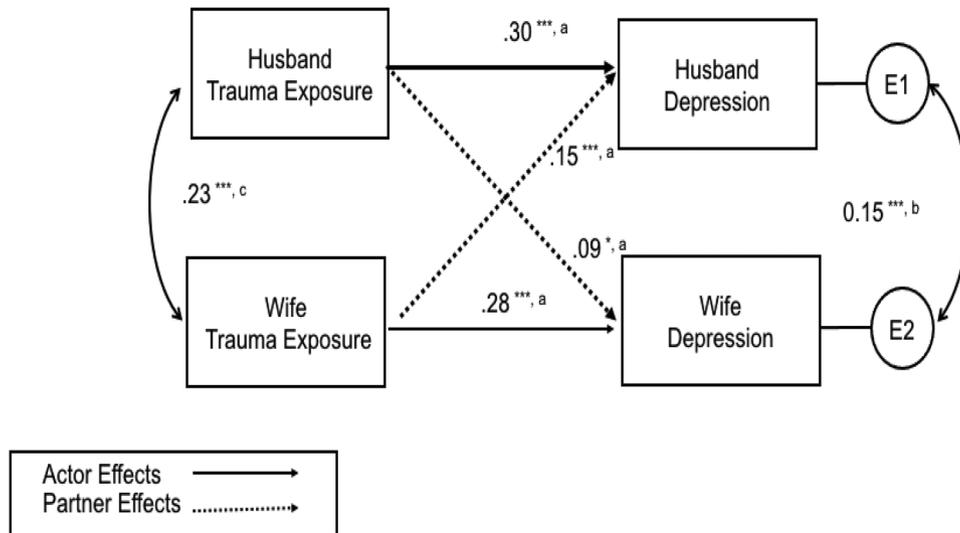


FIGURE 2 Actor-partner interdependence model for depressive symptoms

Note: <sup>a</sup>Standardized beta. <sup>b</sup>Correlated errors. <sup>c</sup>Factor correlation.

\* $p < .05$ ; \*\*  $p < .01$ ; \*\*\* $p < .001$ .

family member's trauma exposure might affect other family members negatively, particularly with regard to spouses (Bramsen et al., 2002; Crowe, 2004; Galovski & Lyons, 2004; Gilbar et al., 2012). This may lead to the transmission of secondary trauma symptoms from wife to husband or vice versa. Although the model was developed in a specific culture and population, it also appears relevant for a war-affected population in the Middle East.

In general, multiple factors can explain the commonalities of mental health between partners in relationships, including shared experiences and life conditions. Each partner's experiences were found to predict their partner's symptoms independently for common risk factors; thus, the transmission of symptoms is more likely to occur within couples than via the influence of shared risk factors. Although there is reason to assume that trauma sequelae, including PTSD and depression, affect interpersonal skills, including emotion regulation and communication (Nelson Goff & Smith, 2005; Oseland et al., 2016), there is little independent data on the communication dynamics in a dual-trauma situation. Future studies should involve the direct observation of interpartner communication and assess factors such as perceptions of both protective and aversive communication as well as attitudes toward the use of interpartner violence. Interpartner violence seems to be increased among couples affected by trauma both outside of and within Middle Eastern cultures (Goessmann et al., 2019), pointing to a potential mechanism of intracouple trauma transmission that should be explored in more detail in future studies.

The present study was limited by the fact that we were able to ensure an unselected, but not necessarily representative, sample. Establishing a representative sample was not possible because there are several camps for forcibly displaced Syrian and Iraqi couples in KRI, and many refugees are hosted outside of these camps; the current sample was recruited in one camp. In addition, the instrument used to assess depression (i.e., the D-HSCL) had not been specifically validated and calibrated for Middle Eastern samples. Further, the trained interviewers used the structured interview to collect the data, but both the PCL-5 and D-HSCL are self-report instruments. Self-report measures allow for the introduction of possible response bias into the data. A major strength of the study is that the assessment of probable PTSD could be determined using translations of the PCL-5 that had been validated in the study population. However, it is important to note that the validation study (Ibrahim et al., 2018) that established the cutoff score used in the current investigation recommended a lower score than the established PCL-5 cutoff score (i.e., 23 vs. 33, respectively; Bovin et al., 2016). Thus, it is important that the lower cutoff score used in this

study be further evaluated, and the findings of this study be interpreted with caution. Even in the face of challenging conditions, the main strength of the present study was the relatively large sample of participants recruited by trained local clinical psychologists and social workers who were under supervision. Furthermore, the PCL-5 and the WAEC instruments were validated for use in a Middle Eastern population.

The current study showed that dual-trauma situations can be the standard reality for couples in war-affected communities. Consistent with the couple adaptation to traumatic stress model (Nelson Goff & Smith, 2005), the present study demonstrates that a mutual acceleration of symptoms in couples under such conditions should be expected. Further research should investigate the potential intracouple transmission of trauma-related symptoms to determine the specific mechanisms of this transmission.

## ACKNOWLEDGMENTS

Open Access funding enabled and organized by Projekt DEAL.

## OPEN PRACTICES STATEMENT

The study reported in this article was not formally preregistered. The data and materials have not been made available on a permanent third-party archive to protect the anonymity of participants. The data will only be available for specialists upon reasonable request ([harem@uni-bielefeld.de](mailto:harem@uni-bielefeld.de)).

## ORCID

Harem Nareeman Mahmood  <https://orcid.org/0000-0002-3238-9714>

## REFERENCES

- Acarturk, C., Cetinkaya, M., Senay, I., Gulen, B., Aker, T., & Hinton, D. (2018). Prevalence and predictors of posttraumatic stress and depression symptoms among Syrian refugees in a refugee camp. *Journal of Nervous and Mental Disease*, 206(1), 40–45. <https://doi.org/10.1097/NMD.0000000000000693>
- Alpak, G., Unal, A., Bulbul, F., Sagaltici, E., Bez, Y., Altindag, A., Dalkilic, A., & Savas, H. A. (2015). Post-traumatic stress disorder among Syrian refugees in Turkey: A cross-sectional study. *International Journal of Psychiatry in Clinical Practice*, 19(1), 45–50. <https://doi.org/10.3109/13651501.2014.961930>
- AlShawi, A. F. (2018). Prevalence of posttraumatic stress disorders among a sample of internally displaced persons in Iraq: A preliminary study. *Journal of Community Medicine & Health Education*, 08(2), 599. <https://doi.org/10.4172/2161-0711.1000599>
- Arzhi, N. B., Solomon, Z., & Dekel, R. (2000). Secondary traumatization among wives of PTSD and post-concussion casualties: Distress, caregiver burden and psychological separation. *Brain Injury*, 14(8), 725–736. <https://doi.org/10.1080/026990500413759>

- Balcom, D. (1996). The interpersonal dynamics and treatment of dual trauma couples. *Journal of Marital and Family Therapy*, 22(4), 431–442. <https://doi.org/10.1111/j.1752-0606.1996.tb00218.x>
- Blackmore, R., Boyle, J. A., Fazel, M., Ranasingha, S., Gray, K. M., Fitzgerald, G., Misso, M., & Gibson-Helm, M. (2020). The prevalence of mental illness in refugees and asylum seekers: A systematic review and meta-analysis. *PLoS Medicine*, 17(9), e1003337. <https://doi.org/10.1371/journal.pmed.1003337>
- Blain, L. M., Galovski, T. E., & Robinson, T. (2010). Gender differences in recovery from posttraumatic stress disorder: A critical review. *Aggression and Violent Behavior*, 15(6), 463–474. <https://doi.org/10.1016/j.avb.2010.09.001>
- Bogic, M., Ajdukovic, D., Bremner, S., Franciskovic, T., Galeazzi, G. M., Kucukalic, A., Lecic-Tosevski, D., Morina, N., Popovski, M., Schützwohl, M., Wang, D., & Priebe, S. (2012). Factors associated with mental disorders in long-settled war refugees: Refugees from the former Yugoslavia in Germany, Italy and the U.K. *British Journal of Psychiatry*, 200(3), 216–223. <https://doi.org/10.1192/bjp.bp.110.084764>
- Bogic, M., Njoku, A., & Priebe, S. (2015). Long-term mental health of war-refugees: A systematic literature review. *BMC International Health and Human Rights*, 15(1), 29. <https://doi.org/10.1186/s12914-015-0064-9>
- Bovin, M. J., Marx, B. P., Weathers, F. W., Gallagher, M. W., Rodriguez, P., Schnurr, P. P., & Keane, T. M. (2016). Psychometric properties of the PTSD Checklist for Diagnostic and Statistical Manual of Mental Disorders-Fifth Edition (PCL-5) in veterans. *Psychological Assessment*, 28(11), 1379–1391. <https://doi.org/10.1037/PAS0000254>
- Bramsen, I., Van Der Ploeg, H. M., & Twisk, J. W. R. (2002). Secondary traumatization in Dutch couples of World War II survivors. *Journal of Consulting and Clinical Psychology*, 70(1), 241–245. <https://doi.org/10.1037/0022-006X.70.1.241>
- Buhmann, C. B. (2014). Traumatized refugees: Morbidity, treatment and predictors of outcome. *Danish Medical Journal*, 61(8), 1–29.
- Catani, C. (2010). Krieg im Zuhause—ein Überblick zum Zusammenhang zwischen Kriegstraumatisierung und familiärer Gewalt. [War at home—review of the relationship between war trauma and family violence]. *Verhaltenstherapie*, 20(1), 19–27. <https://doi.org/10.1159/000261994>
- Catani, C. (2018). Mental health of children living in war zones: a risk and protection perspective. *World Psychiatry*, 17(1), 104–105. <https://doi.org/10.1002/wps.20496>
- Catani, C., Jacob, N., Schauer, E., Kohila, M., & Neuner, F. (2008). Family violence, war, and natural disasters: A study of the effect of extreme stress on children's mental health in Sri Lanka. *BMC Psychiatry*, 8(1), 33. <https://doi.org/10.1186/1471-244X-8-33>
- Charlson, F., van Ommeren, M., Flaxman, A., Cornett, J., Whiteford, H., & Saxena, S. (2019). New WHO prevalence estimates of mental disorders in conflict settings: A systematic review and meta-analysis. *The Lancet*, 394(10194), 240–248. [https://doi.org/10.1016/S0140-6736\(19\)30934-1](https://doi.org/10.1016/S0140-6736(19)30934-1)
- Cohen, J. (1988). Statistical power analysis for the behavioral sciences. In *Statistical Power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum Associates.
- Cook, W. L., & Kenny, D. A. (2005). The Actor-partner interdependence model: A model of bidirectional effects in developmental studies. *International Journal of Behavioral Development*, 29(2), 101–109. <https://doi.org/10.1080/01650250444000405>
- Crowe, M. (2004). Couples and mental illness. *Sexual and Relationship Therapy*, 19(3), 309–318. <https://doi.org/10.1080/14681990410001715436>
- Dargère, M. (2014). What is the translation of the Hopkins Symptom Checklist in 25 items into Croatian? A Delphi consensus procedure for forward-backward translation. <https://dumas.ccsd.cnrs.fr/dumas-01110725>
- Dekel, R. (2007). Posttraumatic distress and growth among wives of prisoners of war: The contribution of husbands' posttraumatic stress disorder and wives' own attachment. *American Journal of Orthopsychiatry*, 77(3), 419–426. <https://doi.org/10.1037/0002-9432.77.3.419>
- Dekel, R., & Monson, C. M. (2010). Military-related post-traumatic stress disorder and family relations: Current knowledge and future directions. *Aggression and Violent Behavior*, 15(4), 303–309. <https://doi.org/10.1016/j.avb.2010.03.001>
- Dorrington, S., Zavos, H., Ball, H., McGuffin, P., Sumathipala, A., Siribaddana, S., Rijdsdijk, F., Hatch, S. L., & Hotopf, M. (2019). Family functioning, trauma exposure and PTSD: A cross-sectional study. *Journal of Affective Disorders*, 245, 645–652. <https://doi.org/10.1016/J.JAD.2018.11.056>
- Fazel, M., Wheeler, J., & Danesh, J. (2005). Prevalence of serious mental disorder in 7000 refugees resettled in western countries: A systematic review. *Lancet*, 365(9467), 1309–1314. [https://doi.org/10.1016/S0140-6736\(05\)61027-6](https://doi.org/10.1016/S0140-6736(05)61027-6)
- Fegert, J. M., Diehl, C., Leyendecker, B., Hahlweg, K., & Prayon-Blum, V. (2018). Psychosocial problems in traumatized refugee families: Overview of risks and some recommendations for support services. *Child and Adolescent Psychiatry and Mental Health*, 12, Article 5. <https://doi.org/10.1186/s13034-017-0210-3>
- Figley, C. R. (1995). *Compassion fatigue as secondary traumatic stress disorder: Coping with secondary traumatic stress disorder in those who treat the traumatized*. Brunner Mazel.
- Galovski, T., & Lyons, J. A. (2004). Psychological sequelae of combat violence: A review of the impact of PTSD on the veteran's family and possible interventions. *Aggression and Violent Behavior*, 9(5), 477–501. [https://doi.org/10.1016/S1359-1789\(03\)00045-4](https://doi.org/10.1016/S1359-1789(03)00045-4)
- Georgiadou, E., Zbidat, A., Schmitt, G. M., & Erim, Y. (2018). Prevalence of mental distress among Syrian refugees with residence permission in Germany: A registry-based study. *Frontiers in Psychiatry*, 9(393). <https://doi.org/10.3389/fpsy.2018.00393>
- Gerritsen, A. A. M., Bramsen, I., Devillé, W., van Willigen, L. H. M., Hovens, J. E., & van der Ploeg, H. M. (2006). Physical and mental health of Afghan, Iranian and Somali asylum seekers and refugees living in the Netherlands. *Social Psychiatry and Psychiatric Epidemiology*, 41(1), 18–26. <https://doi.org/10.1007/s00127-005-0003-5>
- Gilbar, O., Weinberg, M., & Gil, S. (2012). The effects of coping strategies on PTSD in victims of a terror attack and their spouses: Testing dyadic dynamics using an actor-partner interdependence model. *Journal of Social and Personal Relationships*, 29(2), 246–261. <https://doi.org/10.1177/0265407511426939>
- Gistelinck, F., & Loeys, T. (2019). The Actor-partner interdependence model for longitudinal dyadic data: An implementation in the SEM framework. *Structural Equation Modeling*, 26(3), 329–347. <https://doi.org/10.1080/10705511.2018.1527223>
- Goessmann, K., Ibrahim, H., Saupe, L. B., Ismail, A. A., & Neuner, F. (2019). The contribution of mental health and gender attitudes

- to intimate partner violence in the context of war and displacement: Evidence from a multi-informant couple survey in Iraq. *Social Science and Medicine*, 237, 112457. <https://doi.org/10.1016/j.socscimed.2019.112457>
- Hameed, S., Sadiq, A., & Din, A. U. (2018). The increased vulnerability of refugee population to mental health disorders. *Kansas Journal of Medicine*, 11(1), 20–23. <https://doi.org/10.17161/kjm.v11i1.8680>
- Hoppen, T. H., & Morina, N. (2019). The prevalence of PTSD and major depression in the global population of adult war survivors: A meta-analytically informed estimate in absolute numbers. *European Journal of Psychotraumatology*, 10(1), 1578637. <https://doi.org/10.1080/20008198.2019.1578637>
- Ibrahim, H., Ertl, V., Catani, C., Ismail, A. A., & Neuner, F. (2018a). Trauma and perceived social rejection among Yazidi women and girls who survived enslavement and genocide. *BMC Medicine*, 16(1), 154. <https://doi.org/10.1186/s12916-018-1140-5>
- Ibrahim, H., Ertl, V., Catani, C., Ismail, A. A., & Neuner, F. (2018b). The validity of the Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5) as screening instrument with Kurdish and Arab displaced populations living in the Kurdistan region of Iraq. *BMC Psychiatry*, 18(1), 259. <https://doi.org/10.1186/s12888-018-1839-z>
- Idstad, M., Ask, H., & Tambs, K. (2010). Mental disorder and caregiver burden in spouses: The Nord-Trøndelag health study. *BMC Public Health*, 10. <https://doi.org/10.1186/1471-2458-10-516>
- Iida, M., Seidman, G., & Shrout, P. E. (2018). Models of interdependent individuals versus dyadic processes in relationship research. *Journal of Social and Personal Relationships*, 35(1), 59–88. <https://doi.org/10.1177/0265407517725407>
- Johnson, H., & Thompson, A. (2008). The development and maintenance of post-traumatic stress disorder (PTSD) in civilian adult survivors of war trauma and torture: A review. *Clinical Psychology Review*, 28(1), 36–47. <https://doi.org/10.1016/j.cpr.2007.01.017>
- Kartal, D., & Kiroopoulos, L. (2016). Effects of acculturative stress on PTSD, depressive, and anxiety symptoms among refugees resettled in Australia and Austria. *European Journal of Psychotraumatology*, 7(1), 28711. <https://doi.org/10.3402/ejpt.v7.28711>
- Kaya, E., Kiliç, C., Karadağ Çaman, Ö., & Üner, S. (2019). Post-traumatic stress and depression among Syrian refugees living in Turkey: Findings from an urban sample. *Journal of Nervous and Mental Disease*, 207(12), 995–1000. <https://doi.org/10.1097/NMD.0000000000001104>
- Kenny, D. A., & Cook, W. (1999). Partner effects in relationship research: Conceptual issues, analytic difficulties, and illustrations. *Personal Relationships*, 6(4), 433–448. <https://doi.org/10.1111/j.1475-6811.1999.tb00202.x>
- Kenny, D. A., & Kashy, D. A. (2014). The design and analysis of data from dyads and groups. In H. T. Reis & C. M. Judd (Eds.), *Handbook of research methods in social and personality psychology* (pp. 589–607). Cambridge University Press. <https://doi.org/10.1017/CBO9780511996481.027>
- Kenny, D. A., Kashy, D. A., & Cook, W. L. (2006). *Dyadic data analysis*. Guilford Press.
- Kirmayer, L. J., Narasiah, L., Munoz, M., Rashid, M., Ryder, A. G., Guzder, J., Hassan, G., Rousseau, C., & Pottie, K. (2011). Common mental health problems in immigrants and refugees: General approach in primary care. *Canadian Medical Association Journal*, 183(12), E959. <https://doi.org/10.1503/cmaj.090292>
- Mahmood, H. N., Ibrahim, H., Goessmann, K., Ismail, A. A., & Neuner, F. (2019). Post-traumatic stress disorder and depression among Syrian refugees residing in the Kurdistan region of Iraq. *Conflict and Health*, 13(1), 51. <https://doi.org/10.1186/s13031-019-0238-5>
- Miller, M. W., Wolf, E. J., Reardon, A. F., Harrington, K. M., Ryabchenko, K., Castillo, D., Freund, R., & Heyman, R. E. (2013). PTSD and conflict behavior between veterans and their intimate partners. *Journal of Anxiety Disorders*, 27(2), 240–251. <https://doi.org/10.1016/j.janxdis.2013.02.005>
- Morina, N., Akhtar, A., Barth, J., & Schnyder, U. (2018). Psychiatric disorders in refugees and internally displaced persons after forced displacement: A systematic review. *Frontiers in Psychiatry*, 9, 433. <https://doi.org/10.3389/FPSYT.2018.00433>
- Nelson Goff, B. S., Irwin, L., Cox, M., Devine, S., Summers, K., & Schmitz, A. (2014). A qualitative study of single-trauma and dual-trauma military couples. *Psychological Trauma: Theory, Research, Practice, and Policy*, 6(3), 216–223. <https://doi.org/10.1037/a0036697>
- Nelson Goff, B. S., & Smith, D. B. (2005). Systemic traumatic stress: The couple adaptation to traumatic stress model. *Journal of Marital and Family Therapy*, 31(2), 145–157. <https://doi.org/10.1111/j.1752-0606.2005.tb01552.x>
- Neuner, F., Schauer, M., Karunakara, U., Klaschik, C., Robert, C., & Elbert, T. (2004). Psychological trauma and evidence for enhanced vulnerability for posttraumatic stress disorder through previous trauma among West Nile refugees. *BMC Psychiatry*, 4, 34. <https://doi.org/10.1186/1471-244X-4-34>
- Oseland, L., Gallus, K. S., & Nelson Goff, B. S. (2016). Clinical application of the couple adaptation to traumatic stress (CATS) model: A pragmatic framework for working with traumatized couples. *Journal of Couple and Relationship Therapy*, 15(2), 83–101. <https://doi.org/10.1080/15332691.2014.938284>
- Peconga, E. K., & Høgh Thøgersen, M. (2019). Post-traumatic stress disorder, depression, and anxiety in adult Syrian refugees: What do we know? *Scandinavian Journal of Public Health*, 48(7), 677–687. <https://doi.org/10.1177/1403494819882137>
- Riggs, D. S. (2014). Traumatized relationships: Symptoms of post-traumatic stress disorder, fear of intimacy, and marital adjustment in dual trauma couples. *Psychological Trauma: Theory, Research, Practice, and Policy*, 6(3), 201–206. <https://doi.org/10.1037/a0036405>
- Roberts, B., Ocaña, K. F., Browne, J., Oyok, T., & Sondorp, E. (2008). Factors associated with post-traumatic stress disorder and depression amongst internally displaced persons in northern Uganda. *BMC Psychiatry*, 8, 38. <https://doi.org/10.1186/1471-244X-8-38>
- Rugema, L., Mogren, I., Ntaganira, J., & Krantz, G. (2015). Traumatic episodes and mental health effects in young men and women in Rwanda, 17 years after the genocide. *BMJ Open*, 5(6), e006778. <https://doi.org/10.1136/bmjopen-2014-006778>
- Saile, R., Ertl, V., Neuner, F., & Catani, C. (2015). Children of the postwar years: A two-generational multilevel risk assessment of child psychopathology in northern Uganda. *Development and Psychopathology*, 28(2), 607–620. <https://doi.org/10.1017/S0954579415001066>
- Steel, Z., Chey, T., Silove, D., Marnane, C., Bryant, R. A., & Van Ommeren, M. (2009). Association of torture and other potentially traumatic events with mental health outcomes among populations exposed to mass conflict and displacement: A systematic review and meta-analysis. *JAMA*, 302(5), 537–549. <https://doi.org/10.1001/jama.2009.1132>

- Tinghög, P., Malm, A., Arwidson, C., Sigvardsson, E., Lundin, A., & Saboonchi, F. (2017). Prevalence of mental ill health, traumas and postmigration stress among refugees from Syria resettled in Sweden after 2011: A population-based survey. *BMJ Open*, 7(12), e018899. <https://doi.org/10.1136/bmjopen-2017-018899>
- United Nations High Commissioner for Refugees. (2020). *UNHCR—Figures at a glance*. <https://www.unhcr.org/en-au/figures-at-a-glance.html>
- Weathers, F. W., Litz, B. T., Keane, T. M., Palmieri, P. A., Marx, B. P., & Schnurr, P. P. (2013). *The PTSD Checklist for DSM-5 (PCL-5)*. <https://www.ptsd.va.gov/professional/assessment/adult-sr/ptsd-checklist.asp>
- Wind, T. R., van der Aa, N., de la Rie, S., & Knipscheer, J. (2017). The assessment of psychopathology among traumatized refugees: measurement invariance of the Harvard Trauma Questionnaire and the Hopkins Symptom Checklist–25 across five linguistic groups. *European Journal of Psychotraumatology*, 8(2), 1321357. <https://doi.org/10.1080/20008198.2017.1321357>
- Zimering, R., & Gulliver, S. B. (2003). Secondary traumatization in mental health care providers. *Psychiatric Times*. <https://www.psychiatrictimes.com/view/secondary-traumatization-mental-health-care-providers>

**How to cite this article:** Mahmood, H. N., Ibrahim, H., Ismail, A. A., & Neuner, F. (2022). The mental health of forcibly displaced couples. *Journal of Traumatic Stress*, 35, 1598–1607. <https://doi.org/10.1002/jts.22862>