

**Caregiving Representations in War Conditions: Associations with Maternal Trauma, Mental Health,
and Mother-Infant Interaction**

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Abstract

Risk features in mothers' caregiving representations remain understudied in dangerous environments where infants most urgently need protective parenting. This pilot study examines the feasibility of a novel coding system for the PDI interview (ARR, Assessment of Representational Risk) in assessing 50 war-exposed Palestinian mothers' caregiving representations. First, we explored the content and structure of risks in the representations. Second, we examined associations between the high-risk representations, mothers' pre- and postnatal exposure to traumatic war events (TWE), depressive and PTSD symptoms, and self-rated emotional availability (EA) with their one-year-old infants. Three dimensions of high-risk caregiving representations were identified: Self/dyadic Dysregulation, Unavailable, and Fearful. Mothers' prenatal depressive symptoms were associated with Dysregulating and Fearful representations, and their postnatal PTSD with Fearful representations. TWE were not associated with the high-risk representations. Moreover, mothers of boys reported more Fearful representations, and mothers with financial difficulties more Unavailable representations. TWE and high-risk representations were not associated with EA. However, qualitative analysis of the representations indicated risks in the mother–infant relationship. Further, older mothers and mothers with postnatal PTSD reported lower EA. Cultural variance in caregiving representations and the use of self-report measures among traumatized mothers is discussed.

Key words: war trauma, caregiving representations, pre- and postnatal, mental health, emotional availability

Dangerous environments, such as war conditions, highlight the protective function of adaptive caregiving for infant development (Lieberman, Chu, van Horn, & Harris, 2011; Masten & Narayan, 2012; Scheeringa & Zeanah, 2001). Research on European and American traumatized mothers shows that risk features in caregiving representations, such as idealization, fearfulness or hostility, specifically compromise a mother's ability to interpret and respond to her infant's needs in interactions (George & Solomon, 2008a; Lyons-Ruth, Bronfman & Parsons, 1999; Schechter et al., 2008). Thus far, there is little research on mothers' caregiving representations in conditions of war and military conflict. In order to plan preventive and early-onset interventions for the very vulnerable infant families living in such contexts, it is essential to identify the maternal characteristics that compromise caregiver–infant interactions.

The present pilot feasibility study explores the applicability of a novel assessment tool in studying the content and structure of risk features in war-exposed Palestinian mothers' caregiving representations. We further examine how the mothers' traumatic war experiences and mental health symptoms prior to pregnancy and in the postnatal period are associated with risks in the representations, and how all of these maternal variables are associated with the quality of the mothers' interactions with their one-year-old infants.

Effects of Trauma on Caregiving Representations

The pre- and postnatal periods play a central role in the formation of maternal mental representations. During pregnancy, the mother-to-be constructs working models of her infant and herself as a caregiver (Raphael-Leff, 1991; Slade, Cohen, Sadler, & Miller, 2009). These caregiving representations are further refined in the postnatal period, influenced by the family's resilience and risk factors as well as the infant's characteristics (Huth-Bocks, Levendosky, Bogat & Von Eye, 2004; Van Bakel & Riksen-Walraven, 2002). When caregiving representations are coherent, realistic, and mostly positive, they allow the mother to detect and respond to her infant's needs accurately in daily

interactions (Demers, Bernier, Tarabulsky, & Provost, 2010; Korja et al., 2010; Slade, Belsky, Aber & Jay, 1999). Importantly, a well-functioning caregiving representational system organizes maternal behavior around protecting the infant from excessive stress and environmental danger (George & Solomon, 2008a). This allows the child to rely on the mother at times of high arousal and stress, and to gradually internalize the dyadic procedures as his/her own stress and emotion regulation abilities (Ainsworth, Blehar & Waters, 1978; Rosenblum, Dayton, & Muzik, 2009; Sroufe, 1996). Because of their importance for parenting and infant development, caregiving representations are central treatment targets in parent–infant interventions (Lieberman, Silverman, & Pawl, 2000; Stern, 1995).

Research shows that traumatization can disturb mothers' caregiving representations, and consequently their ability to act as a regulating other for the infant (Huth-Bocks et al., 2004; Levendovsky, Huth-Bocks, & Bogat, 2011; Schechter et al., 2005, 2008). However, prior research mostly addresses the impact of interpersonal traumas, such as childhood abuse or later intimate partner violence. These existing studies suggest that infant attachment signals, such as crying or approaching the caregiver, as well as the caregiving responsibility of protecting the infant, can act as specific trauma reminders for the mothers, and evoke fight, flight or freeze reactions in interactions with their infants. Corresponding to these extreme stress reactions, hostile, helpless and fearful features have been found to characterize traumatized mothers' mental representations of themselves, their child, and their relationship (George & Solomon, 2000; Lyons-Ruth, 2003).

In accordance with her hostile representations, a traumatized mother may perceive her infant as a perpetrator or act in frightening or hostile ways towards him/her. Alternatively, the demands of caregiving may inflict a helpless sense of victimhood, and/or evoke fearfulness in a mother. Such states of mind can inflict dysregulating affects and arousal in a mother, and activate a need for self-protection and self-maintenance that overrides the caregiving inclination to help the infant promptly (Hesse & Main, 2000; Lyons-Ruth, 2003; Lyons-Ruth, Yellin, Melnick, & Atwood, 2005).

In their theory of the caregiving system, George and Solomon (2008a) describe how traumatized mothers segregate such intolerable caregiving representations from other mental content. Mothers either attempt to “constrict” the representations from activating, or they become “flooded” or emotionally overwhelmed when the representations are unwillingly activated by the caregiving role or infant signals. Hallmarks of the “constricted” strategy are idealized representations in which the infant is presented as not having any attachment needs that the mother would have to attend to, and role-reversed representations where the mother needs caretaking instead of or from her infant. “Flooded” representations entail a view of oneself as helpless and fearful and of the child as malevolent and impossible to handle. The caregiver’s expressed wishes to abdicate from caregiving, due to a lack of willingness or ability, are seen as extremes of such segregated representations.

To our knowledge, there are no studies investigating the impacts of pre- or postnatal exposure to traumatic events on caregiving representations, despite the fundamental role of these periods in representation formation. Moreover, although constant danger in one’s environment is likely to pose unique demands for caregiving (Belsky, 2008; Crittenden, 2006), information is scarce about the particular effects of military conflict and war on caregiving representations. Existing findings are summarized below.

War-exposed Mothers’ Caregiving Representations

War and military violence pose an extremely challenging context for caregiving. The context for the current study is the Gaza Strip of Palestine. Participating mothers were exposed to wars and military offensives in 2008 and 2012, prior to becoming pregnant with their infants, and to war in 2014, after the infants were born. Due to international boycott and the Israeli military siege, the families continue to suffer from a chronic lack of basic supplies, such as electricity, clean water, nutrition, milk formula, and diapers, as well as medical treatment. Persistent unemployment, poverty, and overcrowded living conditions are additional stressors for the families (UN-Human Rights Council, 2015; Rahim et al., 2009).

Available studies on caregiving representations in war conditions are mostly qualitative, analyzing Israeli mothers expecting and caring for their infants in the aftermath of terrorist attacks (Kaiz et al., 2009; Levy, 2006) and refugee mothers seeking safety with their infants in Europe (Almqvist & Broberg, 2003). These studies suggest that risks in war-exposed mothers' caregiving representations might resemble the flooded/constricted and hostile/helpless-fearful risks identified from Euro-American interpersonally traumatized mothers' representations. War-exposed mothers have been reported to view themselves as damaged and incapable of taking care of their children, while simultaneously perceiving their children as difficult and overly demanding (Almqvist & Broberg 2003; Levy, 2006). Further, Kaitz et al. (2009) found that mothers often expressed fearfulness and overprotection or, in a constricted/idealized manner, described their children as "miraculous" and restorers of normalcy and life.

However, internal working models of caregiving also take influence from the sociocultural context of mothering. Ecological and social reality, cultural values, and mothers' available resources greatly affect their parenting values and behavior (Keller, 2013). Whereas urban and educated Euro-American mothers typically promote their children's independence and individualism, such socialization goals are not representative of caregiving worldwide (Kagitcibasi, 2005; Keller, 2003). In "Non-Western" or "collectivistic" contexts where resources are scarce and family sizes are larger, parents typically value children that adapt to the social group, maintain its harmony, and take others into consideration (Morelli et al., 2017).

Most psychological and developmental studies have concentrated on caregiving in educated, middle-class families in a Euro-American cultural context (i.e., "individualistic cultures"; see Henrich, Heine, & Norenzayan, 2010; Jensen, 2012; Nielsen, Haun, Kärtner, & Legare, 2017). To reach a more comprehensive understanding, an exploratory and open stance needs to be adopted when assessing representations among previously understudied caregivers, such as the Palestinian mothers of the current study. While cultural sensitivity is called for, it should not stand in the way of

recognizing risks in mothers' caregiving representations that can have a negative impact on child development.

High-Risk Caregiving Representations and Mother-Infant Interaction Quality

There is ample evidence that the distorted representations of interpersonally traumatized mothers are associated with dysregulating caregiving, such as hostile, frightened, withdrawn, role-reversed, or affectively contradictory behaviors. Such interactions leave the infant without regulatory help or further heighten his/her overwhelming stress (Crawford & Benoit, 2009; Lyons-Ruth et al., 2005; Main & Hesse, 1990) and have been shown among Euro-American participants to associate with disorganized attachment in infancy (Abrams, Rifkin-Graboi, & Hesse, 2006; Jacobvitz, Leon, & Hazen, 2006; Schuengel, Bakermans- Kranenburg, & van IJzendoorn, 1999) and severe psychopathology, such as personality disorders and dissociation in adulthood (Dutra, Bureau, Holmes, Lyubhik, & Lyons-Ruth, 2009; Lyons-Ruth, Dutra, Schuder, Bianchi, 2006).

There is some evidence that war-traumatized mothers with posttraumatic symptoms show similar dysregulating behaviors in response to their infants' attachment communications. The mothers may withdraw from distressed infants or exhibit unmodulated emotional distress in their presence (Almqvist & Broberg, 2003; Feldman & Vengrober, 2011). Feldman and Vengrober (2011) showed that, as a consequence, Israeli infants formed avoidant attachment patterns, thus sustaining maladaptive emotion regulation beyond the period when their mothers suffered from posttraumatic symptoms. However, to our knowledge, there are no quantitative studies investigating how maternal representations contribute to transmitting the harmful effects of war trauma onto mother–infant interactions.

Maternal Trauma, Mental Health and Caregiving Representations

Research shows that maternal posttraumatic mental health, rather than trauma exposure itself, determines the effect of the traumatic experience on caregiving (Scheeringa & Zeanah, 2001; Feldman & Vengrober, 2011). The pre-and postnatal periods involve great psycho-hormonal changes,

and might make traumatized women especially vulnerable to developing mental health problems, as evidenced by high prevalence of posttraumatic stress disorder (PTSD) and depressive symptoms (Banyard, Williams, & Siegel, 2003; Huth-Bocks, Krause, Ahlfs-Dunn, & Gallagher, & Scott, 2013; Roberts, O'Connor, Dunn, & Golding, 2004). This finding also applies to Palestinian war-exposed mothers ([*reference blinded for review*]).

Although maternal trauma-related mental health problems and dysfunctional representations have both been found to disturb caregiving, only a few studies have addressed the relationship between the two. Lyons-Ruth et al. (2007) showed that hostile and helpless representations were especially prevalent among North American mothers with borderline personality disorder, a condition that overlaps with the definition of complex PTSD (Herman, 1992; van der Kolk et al., 2005). Schechter et al. (2005) found that, among mothers exposed to childhood sexual abuse, PTSD symptoms were associated with highly negative and role-reversed representations of the child. Further, Sled (2013) showed that maternal depression and borderline personality traits were associated with mothers' hostile, helpless, and narcissistic (idealizing and role-reversed) representations.

Despite the reported co-occurrence of maternal mental health symptoms and risk features in caregiving representations, it remains unclear whether they affect mother–infant interactions separately or whether mental health symptoms skew representations, which then compromise interaction quality.

The Current Study

In an attempt to fill the gaps in previous research, we explore risk features in Palestinian, war-exposed mothers' caregiving representations. We focus specifically on the effects that war exposure prior to pregnancy and in the postnatal period, and consequent mental health symptoms, have on these representations, and on how maternal war exposure, pre- and postnatal mental health symptoms, and high-risk representations affect mother–infant interaction quality. The specific research aims are:

1. to identify the structure and content of risk features in caregiving representations, by
 - a. exploring their factor structure; and
 - b. describing possible context-specific features of representational risks;
2. to analyze how mothers' traumatic war experiences (TWE) and mental health (depressive and PTSD) symptoms are associated with the identified risk features in their caregiving representations. We hypothesize that high levels of TWE and mental health symptoms are associated with risk features in the representations;
3. to analyze how maternal TWE, mental health, and high-risk representations are associated with mother-reported interaction quality (emotional availability, EA) and to examine whether the effects of TWE and mental health are mediated via risk features in the representations.

We hypothesize that

- a. mothers' mental health symptoms and high-risk representations, rather than TWE, are directly associated with low EA; and
- b. that the harmful effects of pre- and postnatal TWE and mental health symptoms on EA are mediated through the high-risk representations.

Method

Participants and Procedure

The participants were 50 Palestinian mothers and their infants residing in the Gaza Strip. The sample was randomly selected from participants ($n = 511$) of a longitudinal research project 'Gaza Infant Study' who had completed a caregiving representation interview. The data were collected from 2013 to 2015 (for a description of the project, see Punamäki, Diab, Isosävi, Kuittinen, & Qouta, 2018). A smaller sample was necessary for in-depth and culturally valid analysis of the mothers'

representations. The subsample was deemed sufficient to detect medium to large effects in quantitative analyses. The subsample did not differ from the total sample in demographic characteristics, war trauma experiences, pre- or postnatal depressive symptoms, prenatal PTSD symptoms, or infant characteristics (sex, need for hospital care). However, mothers in the total sample reported more financial difficulties ($M_{\text{diff}} = 0.39$; 95% CI [0.05, 0.73], $t(509) = 2.23$, $p = .03$, Hedges's $g_s = 0.33$) and postnatal PTSD symptoms ($M_{\text{diff}} = 3.05$; 95% CI [0.48, 5.63], $t(450) = 2.23$, $p = .03$, Hedges's $g_s = 0.33$) than in the subsample.

The ethics board of the Palestinian Ministry of Health (MoH) approved the study. Participants of the larger study were recruited from ten Palestinian governmental primary health care centres (PHCCs) during their second trimester of pregnancy (T1) in order to obtain a geographically representative sample of the Gaza Strip. The geographical representativeness was retained in the selection of the current sample by randomly selecting a percentage of cases from each area that corresponded with the percentage of cases in that area in the total sample. The families were further studied in their homes when the infants were four months (T2) and twelve months old (T3). In the subsample, there was no dropout from T1 to T3, but two mothers (4%) had missed data collection at T2 (for a flow chart and a more specific account of dropout in the whole sample, see [ref blinded for review]).

The research visits were conducted by ten fieldworkers with Bachelor's degrees in relevant study fields who received training and supervision in the study procedure and methods. The study protocol was identical for all participants. At T1, the mothers were informed of the study's protocol, purpose, and voluntary nature, and they gave informed consent to participate. At each research visit, the fieldworkers interviewed the mothers and wrote down the answers, instead of asking the mothers to fill standardized questionnaires. This was done so that mothers who were unaccustomed to research practices and partly illiterate would understand the questions, and to form an alliance between fieldworkers and participants. At T3, the semi-structured representation interviews were audiotaped.

Measures

Demographic, obstetric, and newborn characteristics. At T1, the mothers answered open questions about age, number of children, and the length of their current relationship. They further chose education, civic, and employment status from predefined alternatives. A sum variable of the family's financial difficulties was constructed from questions indicating difficulty paying the bills (1 = *no difficulties* to 5 = *extreme difficulties*) and sufficiency of monthly income (1 = *sufficient means* to 4 = *not enough money to cover monthly expenses*).

Concerning obstetric data, at T1, the mothers reported whether they had any diagnosed pregnancy-related risks (high blood pressure, high blood sugar level, bleeding, early contractions, threat of miscarriage, abnormalities in the ultrasound and/or other problems; 0 = *no*, 1 = *yes*). At T2, the mothers reported the method of delivery, infant sex, gestational age, and birth height and weight. A dummy variable was formed to indicate infant prematurity (1 = *premature [gestational age <37 weeks]*; 0 = *full-term infant born at gestational week 37 or later*). Further, the mothers reported infant need for hospitalization during the newborn period or later on, and this information was dummy-coded for analysis (1 = *need for hospitalization*, 0 = *no need*).

Traumatic war experiences were measured at T1 and T3. At T1, the mothers were probed about typical experiences during the 2008/2009 war and the 2012 military offensive with a 25-point questionnaire, including questions about human losses (6 items), material losses (4 items), injuries (4 items), and being exposed to/witnessing warfare (11 items). At T3, a 28-item questionnaire comprising typical events during the 2014 war in Gaza was used, including questions about human losses (3 items), injuries (4 items), being exposed to/witnessing warfare (10 items), forced displacement/separation from family (5 items), and exposure to serious health threats (6 items). The mothers reported whether they had had any of the above experiences (1 = *yes*; 0 = *no*), and sum variables were constructed to indicate total exposure.

Maternal pre- and postnatal depressive symptoms were measured at T1 and T3 using the Edinburgh Postnatal Depression Scale (EPDS; Cox, Holden, & Sagovsky, 1987). The ten-item questionnaire includes questions on depression-related feelings, thoughts, and behaviors, with answers provided on a four-point scale (0 – 3) concerning the last seven days. A sum score of the ten items was used in analysis. Further, as suggested by previous studies, a cut-off score of ≥ 12 was used to indicate major depression (Adouard, Glangeaud-Freudenthal, & Golse, 2005; Deave, Heron, Evans, & Emond, 2008; Su et al., 2007). The measure has been found reliable and valid among pregnant women (Bergink et al., 2011) and Arab postnatal women (Ghubash, Abou-Saleh, & Daradkeh, 1997). In the current sample, internal consistencies (Cronbach's α) were .80 at T1 and .77 at T3.

Maternal pre- and postnatal PTSD symptoms were assessed at T1 and T3 using the Harvard Trauma Questionnaire (HTQ; Mollica & Caspi-Yavin 1991). The first 16 items of the 30-item questionnaire were used to indicate DSM-III-R criteria for avoidance, intrusion and hypervigilance symptoms of PTSD. The mothers reported to what extent they had suffered from the symptoms during the last month on a four-point scale (0 = *not at all* – 3 = *severely*). By taking the arithmetic mean of the 16 items, a cut-off score of 2.5 was used to indicate clinically significant PTSD (see, e.g., Ichikawa, Nakahara, Wakai, 2006). The HTQ has been found reliable among Palestinians (Salo, Qouta, & Punamäki, 2005). In this sample, internal consistencies were $\alpha = .90$ at T1 and $\alpha = .89$ at T3.

Risk features in caregiving representations were assessed at T3 using the semi-structured Parent Development Interview-revised short version (PDI-R S; Slade, Aber, Bresgi, Berger, & Kaplan, 2004), which enquires about views of oneself as a caregiver, the infant, the parent–infant relationship, and the affective experience of parenting. The interview was modified to include two questions regarding how the 2014 war affected the mothers as caregivers and their infants.

Audiotaped interviews were transcribed verbatim and translated from Arabic to English by the second author.

The first author, who is a trained and reliable coder, analyzed the interviews with a new coding system called the Assessment of Representational Risk (ARR, 3rd version; Sleed, Isosävi, & Wain, 2017). The ARR dimensions are summarized in Table 1. The instrument identifies representational risk features that have been found to be specifically associated with dysregulating caregiving behavior and infant disorganized attachment (Sleed, 2013). In the instrument's formation, operationalized representational and parent–infant interaction assessment tools were comprehensively reviewed and a list of correlates to risk features was made.¹ The ARR comprises ten scales, eight of which indicate risk: *hostile behavior*, *hostile experience*, *fearful affect*, *helplessness*, *emotional distress*, *enmeshment/role reversal*, *incoherence*, and *idealization*; and two that assess protective qualities of parenting: *supportive presence* and *mutual enjoyment*. The scales are not mutually exclusive. Each scale is scored from one to five, with high scores (4–5) indicating frequency and/or intensity of representational risk features that, as such, are likely to disturb the parent–infant interaction. Among mothers in the United Kingdom, the ARR has been found to have moderate to good internal consistency, good criterion validity to discriminate between high and low risk samples, and good concurrent and predictive validity in relation to maternal psychopathology and the quality of parent–infant interactions (Sleed, 2013). Further, the ARR showed clinical validity in a RCT study of parent–infant psychotherapy, where risk features in the psychotherapy-enrolled mothers' representations decreased from the pre- to post-intervention assessment (Fonagy, Sleed, & Baradon, 2016).

¹ The interview and interaction coding systems which were reviewed included: the Atypical Maternal Behaviour Instrument for Assessment and Classification (AMBIANCE; Bronfman, Parsons, & Lyons-Ruth, 1999), the Frightened/Frightening coding system (FR; (Main & Hesse, 2005), the Parent Attachment Interview (Biringen, Matheny, Bretherton, Renouf, & Sherman, 2000), the Caregiving Interview (George & Solomon, 2008b), the Working Model of the Child Interview (Zeanah, Benoit, & Barton, 1986), the Adult Attachment Rating and Classification System (Main & Goldwyn, 1991), the Hostile/Helpless coding system (Lyons-Ruth, Melnick, Atwood & Yellin, 2003), the Maternal Insightfulness Assessment (Koren-Karie, Oppenheim, Dolev, Sher, & Etzion-Carasso, 2002; Oppenheim & Koren-Karie, 2002), and the adapted version of the AMBIANCE to be applied to parents' narratives (Crawford & Benoit, 2009).

Table 1

*The evaluated dimensions of caregiving representations in the Assessment of Representational Risk (ARR)**coding system*

Dimension	Description
1. Hostile experience	Overt or covert description of the child or parenting in negative or derogatory terms: parent's experiences of the child as purposefully difficult or as the cause of their distress, and/or parenting as a hindrance to what they are able to do.
2. Hostile behavior	Expressed verbal or physical threatening, frightening and punitive behaviors towards the child. Ranging from teasing, mocking, refusal to help the child at times of heightened arousal, to physical abuse.
3. Fearful affect	Fears and worries about the parent's own or the child's wellbeing, safety or life. At high levels the fearfulness is irrational and preoccupies the parent's mind.
4. Helplessness	Descriptions of a reduced sense of power in relation to caring for their child. At high levels, the parent's view that the child has the power and of oneself as a victim.
5. Emotional distress	Expressions of overwhelming painful or negative emotions such as guilt, anxiety or depression that the parent struggles to regulate and which impinge on caregiving.
6. Idealisation	Descriptions that lack or deny the negative or challenging experiences of caregiving or the child. Such descriptions can be generalized and lacking in detail, or could show unrealistic glorification of parenting, the child or the relationship.
7. Enmeshment/Role reversal	Statements where the caregiver's and child's roles or boundaries are confused, e.g. difficulty to separate from child, descriptions of self and child as similar or the same, perceptions of the child as more powerful than self or demanding/expecting care from the child.
8. Incoherence	Confusing, off-the-point, hard-to-follow or bizarre descriptions, comprising the parent becoming lost in thought, wandering off topic, not collaborating and making (unnoticed) contradictions. Dysfluencies or grammatical errors are not coded as Incoherence.
9. Supportive presence	Parent's ability to recognize the child's needs and to respond to them appropriately with regulatory help, care and support (sensitivity), as well as capability to allow the infant to explore.
10. Mutual enjoyment	Descriptions where it is clear that the parent and child are both enjoying interactions with each other; shows parental "falling in love" with their child and serves as motivation to endure difficulties in parenting.

Note. A dimension is scored based on the frequency and intensity of incidents found in the parents' narrative. There are no specific demand questions of the PDI that are scored but instead the whole of parent's narrative is evaluated. Dimensions 1 - 8 indicate representational risk features and dimensions 9 – 10 indicate protective factors for the parent – child relationship.

For inter-rater reliability, the fifth author, a trained and reliable coder in the ARR, analyzed 20% of the cases ($n = 10$). A mixed-effects model of consistency demonstrated an intraclass correlation (ICC) of .87 for a total risk score (sum of all scale scores with the two positive scales reversed); .94 for the first factor and .89 for the second factor found in this study, indicating good reliability; and .67 for the single ARR scale used in the analysis, indicating moderate reliability (Koo & Li, 2016).

Prior to this study, the ARR instrument had not been used with Middle-Eastern/Palestinian mothers. In order to ensure that the ARR reliably captured risks among the Palestinian mothers, and to allow for an exploration of potential context-specific features in the Palestinian mothers' representational risks, the first author kept a diary of qualitative aspects of risk features detected with the ARR. After coding all the cases, the qualitative diary was re-read several times, and the reoccurring phenomena were summarized. Throughout the process of analyzing the interviews, the first author held regular videocall meetings with the second (Palestinian) author in order to discuss possible cultural and contextual meanings in the mothers' representations.

Mother–infant interaction quality was assessed at T3 with the short version of the Emotional Availability Self-Report (EA-SR Brief; Biringen, Vliegen, Bijttebier, & Cluckers, 2002). The EA-SR Brief is based on the observational Emotional Availability Scales and has been shown to correlate significantly with its dimensions (Vliegen, Luyten, & Biringen, 2009). The 28-item questionnaire enquires about parental emotional availability, such as enjoyment of the relationship, ability to read the infant's signals, and structuring (13 items, e.g., “My baby is lots of fun to be around” and “Even if my baby doesn't get it right, I let him/her have the experience”). The questionnaire also enquires about non-availability, such as lack of positive interaction and inability to help the child in affect and stress regulation (15 items, e.g., “My baby doesn't seem to notice when I come back into the room” and “It is hard to soothe my baby and s/he seems to be distressed a lot”).

The mothers evaluated how characteristic each statement was of their relationship with their infant on a 5-point scale (1 = *almost never*; 3 = *sometimes*; 5 = *always*). A previous study among Gazan mothers confirmed the two-factor structure underlying the items (Lahti et al., 2019). In the subsample, internal consistency for the non-availability subscale was unsatisfactory (Cronbach's $\alpha = .23$). Thus, only the sum of the items of the emotional availability subscale (Cronbach's $\alpha = .78$) was used to indicate interaction quality.

Translation of the measures. The questionnaires on traumatic war events and PTSD were already available in Arabic. A bilingual researcher translated the EPDS, PDI, and EA instruments from English to Arabic, and another member of the research team conducted a back-translation to check for accuracy. The concordance between the translation and back-translation of the measures was found to be satisfactory. The parts of the back-translation that showed less satisfactory concordance were discussed thoroughly with a third member of the research team, and the best-fitting phrasing was agreed upon and included in the final Arabic version of the measures.

Statistical Analyses

The factor structure of risk features in representations (ARR) was examined using Exploratory Factor Analysis (EFA). EFA was carried out using ordinary least-squares (OLS) factor extraction with the *EFAutilities 1.2.1* R package (Zhang, Jiang, Hattori, & Trichtinger, 2017). Standard errors and confidence intervals were estimated using the sandwich method provided by the package, which in the case of Likert-type or non-normal variables is equivalent to the infinitesimal jackknife method (Zhang, Preacher, & Jennrich, 2012). Oblique CF-varimax rotation was used, as the ARR factors were assumed to be correlated. Both the statistical significance of estimated loadings (at $\alpha = .05$) and their magnitude ($\lambda > .40$) were considered for the retention of items and determining optimal factor structure. The sample size of 50 is close to the minimum considered acceptable in research employing EFA, but it does satisfy the general recommendation of five participants per variable (Henson & Roberts, 2006).

As the factor loadings ascertained by EFA were computed from the same rather limited data that were used for further analysis, the factor scores relying on these loading estimates may be overly dependent on idiosyncrasies of the current data. Thus, aggregate mean scores were computed based on the factor structure suggested by EFA and used in further analyses, an approach deemed suitable for exploratory analysis (Tabachnick & Fidell, 2001).

Associations between mothers' traumatic war experiences (TWE) and pre- and postnatal mental health (depressive and PTSD) symptoms, background variables, ARR, and interaction quality (EA) were examined through bivariate correlations. Background variables that were associated with TWE, mental health symptoms or EA were included in the correlation analysis. Where several mental health, war trauma or background variables were correlated with a particular ARR dimension or EA, OLS multiple regression analysis was used to estimate the relative predictive contribution of each variable, accounting for the others.

Where correlations suggested possible mediation paths, indirect effects of TWE and mental health on EA via ARR dimensions were tested using OLS regression path analysis. Due to the complexities of combining bootstrapping and multiple imputation, the more straightforward product of coefficients method, combined with Aroian's second-order solution for the standard error of the product, was considered adequate for evaluating indirect effects. For regression analyses, the properly ordinal ARR fearfulness variable was treated as continuous, which is considered acceptable for a Likert-type item with five categories (Rhemtulla, Brosseau-Liard, & Savalei, 2012).

While the data for ARR and EA were complete, there were 27 data points (3.2% of total data) missing for demographic variables, TWE, and mental health variables. Little's test failed to reject the hypothesis that data were missing completely at random ($p = .52$). Multiple imputation with chained equations, using the *mice 2.46.0* R package (van Buuren & Groothuis-Oudshoorn, 2011), was used to handle missing data. Twenty imputation sets were generated, with predictive mean matching used for continuous variables and logistic regression used for binary ones. All analyses were carried out

using these multiple imputation data sets and the results were pooled following Rubin's rules and Fisher transformation for correlation coefficients.

Descriptive statistics were calculated using SPSS version 24, and are reported based on non-imputed data. All other data processing and analyses were carried out using R 3.4.3 (R Core Team, 2017). The R input scripts that were used are available from the fourth author upon request.

Results

Descriptive Statistics, Traumatic War Experiences and Mental Health Symptoms

The mean age of the mothers in the study was 24.7 years ($SD = 5.83$), ranging from 17 to 46 years. They were all married, with the mean length of the marriage being 6.14 years ($SD = 4.17$) and ranging from 1 to 19.5 years. Approximately half of the mothers had attended secondary school (56.0%, $n = 28$), and almost a third possessed a higher degree (30.0%, $n = 15$). A vast majority of the mothers were primarily occupied as caregivers (86.0%, $n = 43$), and 14% ($n = 7$) were working outside the home. About one-fifth of the mothers were expecting their first child (22.9%, $n = 11$). The maximum number of children in the families was six, while the most common family size was three children ($M = 2.86$; $SD = 2.85$). All the mothers reported the family having some degree of financial difficulty, and 38.0% ($n = 19$) reported having significant difficulties. The mothers rarely reported any pregnancy-related risks (8.0% $n = 4$).

Concerning childbirth, eight out of ten of the mothers (81.3%, $n = 39$) had a vaginal delivery. A little less than a fifth (18.7%, $n = 9$) of the mothers had a Caesarean section, five of them (10.0% of all births) being emergency C-sections. A little over half (54.2 %, $n = 26$) of the infants were boys and 45.8% ($n = 22$) were girls. Only two infants (5.7%) were born prematurely. The mothers reported

that about a fifth (21.3%, $n = 10$) of the infants needed extra hospital treatment during the neonatal period or later on.

The mothers' traumatic war experiences (TWE) and mental health symptoms in the pre- and postnatal periods are summarized in Table 2. Nearly all the mothers reported exposure to war events both before pregnancy and in their postpartum period. During the 2008 and 2012 wars, material losses and injuries to self or significant others were the most common traumatic events. Regarding the 2014 war, mothers most often reported displacement and exposure to health and life-threatening environmental hazards.

Concerning the mothers' mental health, depressive symptoms were found to be especially prevalent. In the prenatal period, over half of the mothers reported symptom levels that met the criteria for major depression, and 60.0% reported such symptoms in the postnatal period. About 15-16% of the mothers reported PTSD symptoms exceeding the diagnostic cut-off point both in the pre- and postnatal periods.

Table 2

Maternal pre- and postnatal war experiences and mental health symptoms

	Participants	
	%	<i>n</i>
Traumatic war experiences before pregnancy		
Exposure to war events	95.9	47
Injury	75.5	37
Material losses	73.5	36
Human losses	64.6	31
Traumatic war experiences in postpartum		
Exposure to war events	98.0	49
Displacement	88.0	36
Exposure to serious health threats	72.0	36
Human losses	28.0	14
Injury	24.0	12
Prenatal Depression		
Clinical cut-off ≥ 12	54,0	27
Postnatal depression		
Clinical cut-off ≥ 12	60,0	30
Prenatal PTSD		
Clinical cut-off ≥ 2.5	14,6	7
Postnatal PTSD		
Clinical cut-off ≥ 2.5	16,0	8

Note. Total *N* of mothers ranged from 48 to 50 due to missing values. PTSD = Posttraumatic Stress Disorder Symptoms.

The Structure and Content of Mothers' High-Risk Representations

Visual inspection of both the scree plot and eigenvalues suggested a two-factor solution for the ARR risk features in mothers' representations. In the two-factor solution provided by EFA with oblique rotation, three items did not show satisfactory loadings to a single factor. *Enmeshment* and *fearfulness* did not load above $\lambda = .40$ on either factor, whereas *supportive presence* loaded equally on both factors. As previous research suggests that *fearfulness* is a central representational risk feature, it was retained for further analysis as a single-item scale. *Enmeshment* and *supportive presence* were dropped from further analysis.

A final EFA with the seven retained items further supported a two-factor solution. *Hostile experience*, *hostile behavior*, *helplessness*, and *emotional distress* loaded strongly ($\lambda = .62-.86$) on the first factor, named Dysregulating representations, reflecting the mother's inability to regulate her own emotions and her infant during interactions. *Idealization*, *incoherence*, and *mutual enjoyment-reversed* loaded strongly ($\lambda = .58-.81$) on the second factor, named Unavailable representations, reflecting a lack of maternal motivation and realism in interpreting and responding to infant signals. The final EFA model is presented in Figure 1. The model fit the data reasonably well ($F(8) = 10.87$, $p = .21$, $RMSEA = .08$, 90% CI [.00, .20]).

Cross-loadings were statistically significant for *helplessness*, *idealization*, and *incoherence*, and highest for *incoherence* ($\lambda = .36$ loading on Dysregulating representations). Because *incoherence* theoretically co-occurs with *idealization* (idealized narratives lack realism and are thus incoherent), it was retained as part of Unavailable representations despite the cross-loading. Based on these results, mean scores were calculated for Dysregulating representations and Unavailable representations. These aggregate scores had good ($\alpha = .84$) and satisfactory ($\alpha = .69$) reliability, respectively.

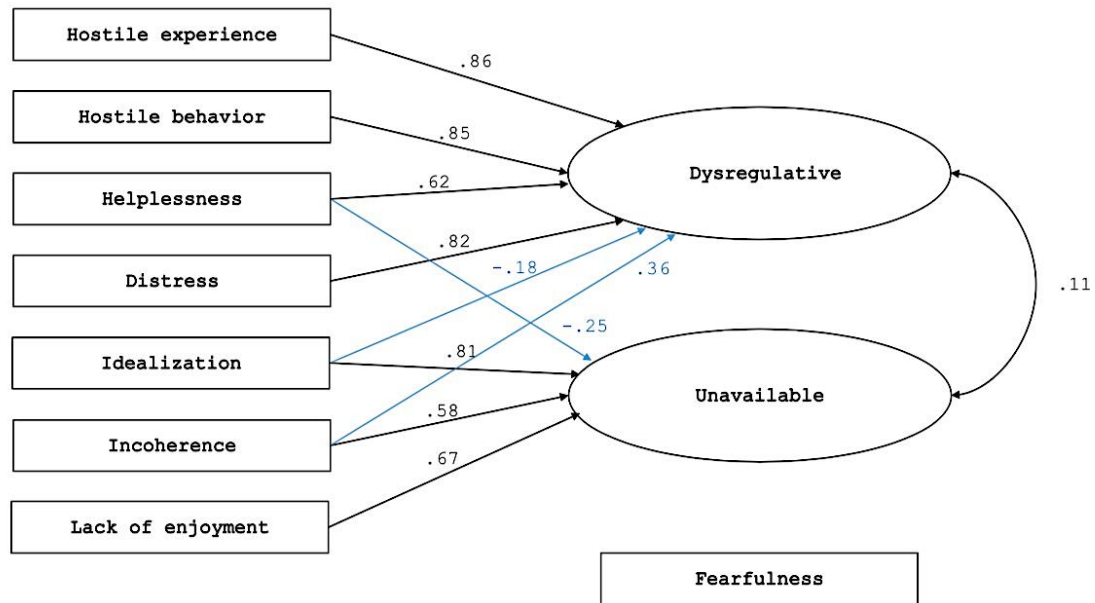


Figure 1. Results of exploratory factor analysis for Assessment of Representational Risk. N = 50. Only significant loadings shown.

Qualitative remarks on the content of representation dimensions. The qualitative analysis substantiated the argument that Dysregulating, Unavailable, and Fearful features were central and recurrent risk features in the mothers’ representations. The contents of the Dysregulating representations typically incorporated mothers’ descriptions of themselves as nervous or unable to regulate their anxious or angry outbursts in the presence of their infants. The mothers repeatedly stated that their overburdening responsibilities of taking care of the house and the extended family, as well as the chronic shortage in basic supplies, were the cause of their distress. In addition to identifying their holistic caregiving role as a source of burden, the mothers gave very negative descriptions of their infants as purposefully difficult and tiring them. Alarming, the mothers also talked about not attending to the infants’ needs, slapping or beating their infants in response to undesired behaviors, and severely dysregulated infant reactions (e.g., banging head on floor, pulling hair).

The *lack of enjoyment* in the Unavailable representations manifested as maternal expressions of not having the time or motivation to interact with their infants and of experiencing the infants as bothering them. *Idealization and incoherence* were evident when mothers spontaneously spoke about their distress or punitive behavior, but when asked specifically about negative emotional experiences (such as feeling angry or guilty as a parent) or difficulties in relation to the child (i.e., “describe a time when you and your child really didn’t ‘click’”), they denied having any. Another *incoherent* answering pattern was irrelevant or very concrete answers given to the PDI’s psychologically-oriented questions. For example, mothers responded to the question “how has having the child changed you?” with answers such as “my weight has increased”, “nothing”, or “the family expenses increased”. Furthermore, when probed about the child’s emotional experience (such as “what would you describe as his/her favorite thing to do”; “tell me about the times your child has most trouble with”), the mothers often described their infant’s behavior or physical characteristics. Such answers gave the impression that the mothers were not familiar or comfortable with reflecting upon their own or the infants’ mental states.

Regarding Fearfulness, a majority of the mothers described preoccupation with fear during the most recent war in Gaza in 2014. When the fearful states of mind were limited to descriptions of the past, they were not considered indicative of high-level Fearfulness that is characterized by unrealism and lack of connection to an objective source. Instead, expressions of Fearfulness that originated from the 2014 war and still preoccupied the mothers’ minds a year later received a high rating. Typically, the mothers expressed fearing that something bad would happen to their infant (e.g. constant worry that s/he would trip on stairs) or fear of losing them. Further, it was common for the mothers to describe a constant fear of a new war. This threat, in tandem with reports of extreme difficulties in providing their children with everyday necessities, gave rise to some mothers’ expressions that they wished not to have any children. This was not deemed as “abdication from caregiving” that reflects an extremely hostile or helpless stance towards parenting (George &

Solomon, 2008a) but rather as an understandable response to the pain that the mothers bore for both their own and their children's sake in the intolerable situation.

Associations between Traumatic War Experiences, Mental Health and High-Risk Representations

Bivariate correlations between background and demographic variables, traumatic war experiences (TWE) and mental health, the identified ARR dimensions, and interaction quality (EA) are presented in Table 3. Our hypothesis that high levels of TWE and mental health symptoms would be associated with the high-risk representations was partially confirmed, as prenatal depressive symptoms were positively associated with Dysregulating representations ($r = .30, p = .03$) and Fearful representations ($r = .33, p = .02$) and postnatal PTSD was positively associated with Fearful representations ($r = .29, p = .04$). However, TWE were not significantly associated with any of the ARR dimensions. The results further showed that mothers with male infants had more Fearful representations ($r = .38, p = .007$), and that financial difficulties were positively correlated with the Unavailable representations ($r = .29, p = .04$).

Prenatal depressive symptoms, postnatal PTSD symptoms, and infant gender were all included as predictors of Fearful representations in a multiple regression model, presented in Table 4. In this model, infant male gender was a significant predictor ($b = 0.72, 95\% \text{ CI } [0.20, 1.24], p = .008$) and prenatal depressive symptoms a marginally significant predictor ($b = 0.04, 95\% \text{ CI } [-0.006, 0.09], p = .09$). However, postnatal PTSD was not significantly associated with Fearful representations. The model explained a total of 26.8% of variance in Fearful representations ($R^2 = .27, 95\% \text{ CI } [.08, .49]$).

Table 3

Bivariate correlations between maternal background variables, war experiences, mental health, high-risk representations and emotional availability.

Measure	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1 Age																
2 Education	.18 [-.11, .44]															
3 Financial difficulties	-.17 [-.43, .11]	-.31* [-.54, -.03]														
4 Number of children	.62*** [.40, .76]	-.10 [-.37, .18]	.06 [-.22, .34]													
5 Male child	.19 [-.10, .45]	-.17 [-.43, .11]	.14 [-.14, .41]	.27 [-.02, .52]												
6 Premature birth	-.03 [-.34, .28]	.24 [-.19, .59]	-.05 [-.38, .29]	-.01 [-.31, .29]	-.05 [-.41, .32]											
7 Hospital care	.13 [-.17, .40]	-.10 [-.37, .18]	.04 [-.24, .32]	.08 [-.21, .36]	-.04 [-.33, .25]	.01 [-.31, .33]										
8 T1 War experiences	.12 [-.17, .39]	-.09 [-.36, .20]	.10 [-.18, .38]	.21 [-.08, .47]	.15 [-.14, .42]	.19 [-.17, .50]	.04 [-.26, .34]									
9 T3 War experiences	.06 [-.22, .34]	-.09 [-.36, .19]	.33* [.06, .56]	.21 [-.08, .46]	.13 [-.17, .40]	.22 [-.12, .51]	.06 [-.23, .35]	.10 [-.18, .37]								
10 T1 Depression	-.14 [-.41, .14]	.03 [-.25, .31]	.17 [-.11, .43]	.14 [-.14, .41]	.04 [-.25, .32]	.07 [-.25, .37]	.03 [-.26, .31]	.16 [-.12, .42]	.36** [.09, .58]							
11 T3 Depression	.07 [-.21, .34]	-.10 [-.36, .19]	.16 [-.12, .42]	.26 [-.02, .50]	.12 [-.16, .39]	.07 [-.24, .37]	.08 [-.21, .35]	.18 [-.11, .44]	.39** [.13, .60]	.41** [.15, .62]						
12 T1 PTSD	-.37* [-.59, -.10]	-.04 [-.31, .25]	.36* [.08, .58]	-.03 [-.31, .25]	.09 [-.20, .36]	-.04 [-.40, .32]	.09 [-.20, .37]	.13 [-.16, .40]	.22 [-.07, .47]	.42** [.16, .63]	.17 [-.12, .43]					
13 T3 PTSD	-.06 [-.33, .22]	.19 [-.10, .44]	.27 [-.01, .51]	.07 [-.22, .34]	.04 [-.25, .32]	.24 [-.10, .53]	-.24 [-.50, .05]	.10 [-.18, .37]	.12 [-.17, .38]	.42** [.15, .62]	.26 [-.02, .50]	.28 [-.00, .52]				
14 Fearful	.09 [-.19, .36]	-.07 [-.34, .21]	-.02 [-.30, .26]	.22 [-.06, .47]	.37** [.10, .59]	.06 [-.29, .40]	-.22 [-.48, .06]	.18 [-.11, .44]	.21 [-.07, .46]	.33* [.06, .56]	.24 [-.04, .49]	.13 [-.15, .40]	.29* [.02, .53]			
15 Dysregulating	.07 [-.21, .34]	.08 [-.20, .35]	.22 [-.06, .47]	.17 [-.11, .43]	.15 [-.14, .42]	-.02 [-.39, .36]	-.05 [-.33, .24]	-.05 [-.34, .24]	.27 [-.01, .51]	.30* [.03, .54]	.11 [-.17, .38]	.19 [-.10, .44]	.11 [-.17, .38]	.18 [-.10, .44]		
16 Unavailable	.09 [-.19, .36]	-.18 [-.44, .10]	.29* [.01, .52]	.14 [-.14, .41]	.08 [-.22, .36]	-.25 [-.58, .14]	.01 [-.29, .30]	-.16 [-.42, .12]	-.02 [-.29, .26]	-.04 [-.31, .24]	.16 [-.13, .42]	.01 [-.27, .30]	.00 [-.28, .28]	-.13 [-.40, .15]	.19 [-.09, .44]	
17 EA	-.33* [-.56, -.06]	-.16 [-.42, .12]	-.15 [-.41, .14]	-.21 [-.46, .08]	-.13 [-.40, .16]	-.16 [-.46, .18]	.26 [-.03, .50]	-.19 [-.45, .10]	-.06 [-.33, .23]	-.04 [-.32, .24]	-.10 [-.37, .18]	-.02 [-.30, .26]	-.41** [-.62, -.15]	-.12 [-.39, .16]	-.09 [-.36, .19]	.13 [-.16, .39]

Note. $N = 50$. EA = self-rated Emotional Availability. PTSD = Posttraumatic Stress Disorder symptoms. Pooled estimates based on 20 multiple imputation sets. Numbers in brackets indicate lower and upper 95% confidence limits.

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

Table 4.

Prenatal depression, postnatal PTSD and infant gender predicting Fearful caregiving representations among Palestinian mothers.

<i>Predictor</i>	<i>B</i>	<i>SE</i>	<i>t</i>
Intercept	0.62	0.49	1.27
Child gender (male)	0.72	0.26	2.78**
Prenatal depression	0.04	0.02	1.75+
Postnatal PTSD	0.02	0.02	1.29

Note. $N = 50$. $R^2 = .27$. PTSD = Posttraumatic Stress Disorder symptoms. Pooled estimates based on 20 multiple imputation sets. + $p < .10$; ** $p < .01$.

Associations between Traumatic War Experiences, Mental Health, High-Risk Representations and Interaction Quality

Our hypothesis that mental health symptoms and representational risk features, rather than TWE, are directly associated with low EA in mother–infant interaction received partial support, as high level of mothers’ postnatal PTSD was associated with a low level of EA ($r = -.41, p = .003$). However, neither prenatal mental health symptoms, postnatal depressive symptoms, nor the high-risk representations were associated with EA. Results further showed that older mothers reported lower EA than younger mothers ($r = -.33, p = .02$). The hypothesis that high-risk representations would mediate the effects of TWE or mental health on EA was not supported, as the representations were not significantly associated with EA. Hence, we did not test for indirect effects on EA via the representations.

When included jointly in a multiple regression model, both the mother’s age ($b = -0.42, 95\%$ CI $[-0.70, -0.13], p = .005$) and postnatal PTSD symptoms ($b = -0.34, 95\%$ CI $[-0.53, -0.14], p = .001$)

significantly predicted lower EA. This model explained a total of 29.8% of variance in EA ($R^2 = .30$, 95% CI [.10, .51]).

Discussion

This pilot study investigated the structure, content, and importance of high-risk caregiving representations in a previously understudied sample, that of war-exposed Palestinian mothers. The results are to be considered as preliminary and their generalization requires replication with larger and diverse samples. We identified three dimensions of high-risk caregiving representations: Dysregulating, Unavailable and Fearful. To an extent, these working models resemble Euro-American mothers' high-risk representational features: flooded-constricted (George & Solomon, 2008a), hostile-helpless (Lyons-Ruth & Block, 1996; Lyons-Ruth et al., 2005) and fearful (Main and Hesse, 1990). However, the mothers' representational risks also showed context-specificity that needs to be acknowledged.

The mothers were interviewed with the Parent Development Interview (PDI; Slade et al., 2004) which probes about caregiving representations in relation to a specific child. Despite this, they typically narrated broader working models of themselves as caregivers to many children and to the extended family. Earlier studies from the same data have shown that the mothers favor collectivistic family values, with an emphasis on relatedness over individualism and autonomy (Kuittinen et al., 2014). Hence, Palestinian mothers' caregiving representations may focus less on a single infant's psychological experiences and the dyadic relationship with him/her, and more on taking care of a large family, than those of Euro-American mothers. Intertwined with this socio-culturally constructed caregiving identity, the stressful and dangerous military conflict is a specific context for mothering in the Gaza Strip. Accordingly, we consider the relation between these contextual determinants of caregiving and the identified representational risks.

The mothers reported chronic overburdening as a catalyst for their Dysregulating representations. In these the mothers described, first, expressing unmodulated emotional distress in the company of their infants, and second, extremely negative views of their infants and dysregulating behaviors towards them, such as leaving the infants' distress unattended and using physical violence. Thus, while reflecting a caregiving role that went beyond the infant and the dyadic relationship, the Dysregulating representations communicated severe risks to infant development.

Focus on relatedness rather than individualism can partly help to explain the identified Unavailable representational features. The mothers' statements about not having any negative feelings toward or difficulties with their children, as well as their tangential or concrete accounts of their own or their infants' experiences, may be products of a socialization process in which a focus on subjective experiences is discouraged (Dwairy, 2004; Keller et al., 2006). Although a psychological-mentalizing orientation characterizes parenting in peaceful and urban contexts, it is not typical, or even desired, among parents living under different contextual restraints, values, and demands (Keller, 2013). The mothers' spontaneous reports of their distress, which seemingly contradicted the denial of difficult emotions, were, in fact, often descriptions of *behavioral* dysregulation (such as acting in a nervous or angry way). However, in addition to disregarding their infants' psychological experiences, the Unavailable representations were also characterized by a lack of enjoyment, which conveys the mothers' lack of motivation to interact with their infants. Hence, although the Unavailable representations likely reflect culturally salient working models, they are also suggestive of the war-exposed mothers' neglectful stance towards their infants' regulatory needs.

In assessing the mothers' Fearfulness, accounting for war context was pivotal. Only when a mother's fears preoccupied her mind in the post-war interview setting were they deemed unrealistic or unconnected to a source. However, assessing the "realism" of the mothers' fears was complicated by the context of ceaseless military conflict, where a new war was a constant possibility and the mothers were repeatedly reminded of their past exposure by hearing the roar of military airplanes.

While the mothers' Fearful representations are understandable in such circumstances, they have still been shown to lead to non-optimal caregiving, such as constant hypervigilance and overprotection (Kaitz et al., 2009).

In sum, the qualitative analysis of the Palestinian mothers' caregiving representations suggests that caution is warranted in labelling cultural variations as incoherence or idealizing. More research among Middle-Eastern mothers is needed to differentiate culturally salient disregard of negative emotions from "constricted" representations. In contrast, identifying flooded, fearful, and hostile representational features was very unambiguous in this sample. Our results tentatively suggest that such representational features could serve as global risk indicators among mothers with diverse trauma histories.

Regarding associations between mothers' war exposure, mental health, and representations, we found that the mothers' representations showed high-risk features only when they developed pre- and postnatal mental health symptoms. The finding concurs with previous results showing that mothers' posttraumatic psychopathology, rather than the trauma itself, interferes with caregiving behavior (Feldman & Vengrober, 2011; Scheeringa & Zeanah, 2001). The current study confirmed that this effect is similar with regard to caregiving representations.

Prenatal depressive symptoms were linked with both Dysregulating and Fearful representations. As found with other groups of mothers (Ahlqvist-Björkroth et al., 2016; Lindgren, 2001), depression during pregnancy could have interfered with war-traumatized mothers' formation of caregiving representations. We further found that postnatal PTSD symptoms were associated with Fearful representations. As earlier research has shown that infant attachment communications can trigger mothers' posttraumatic symptoms (Almqvist & Broberg, 2001; Schechter & Willheim, 2009), this result might suggest that hypervigilant arousal states characteristic of PTSD also generate Fearful representations. An important finding was that financial difficulties were associated with the mothers'

Unavailable representations. This strengthens the view that chronic stress stemming from living in a military conflict area is a central risk for adaptive caregiving.

Unexpectedly, we found that caring for an infant boy predicted high levels of Fearful representations. The different socialization goals and roles that Middle-Eastern parents assign to boys and girls (Moghadam, 2004) offer a tentative explanation for this finding. Mothers' greater alertness or worrying may result from boys being more highly valued than girls, as they take the role of family providers as adults whereas girls move to their husbands' homes. Furthermore, research on older children shows that war-traumatized boys develop externalizing symptoms more often than girls (Dmitry, 2011; Qouta, Punamäki, & El Sarraj, 2005). If infant boys similarly express high levels of distress after war exposure, it might specifically trigger maternal Fearfulness. More research is needed on whether war-exposed boys are more susceptible to a fearful caregiving pattern than girls, and on whether unique risk patterns can be identified for the war-traumatized mothers of girls.

Contrary to expectations, we did not find the high-risk representations to be associated with quality of interactions between Palestinian mothers and their infants; nor did we find support for the mediating role of representations between mothers' traumatic war experiences or pre- and postnatal maternal mental health symptoms and interaction quality. Instead, mothers' postnatal PTSD was linked to reporting of fewer emotionally available interactions with their infants. This finding concords with earlier findings of mothers' posttraumatic stress symptoms interfering with their caregiving (Almqvist & Broberg, 2001; Feldman & Vengrober, 2011; Schechter et al., 2006). Furthermore, older mothers reported lower emotional availability. As these women likely have more children and a heavier set of responsibilities in the home, they may have fewer resources for attending to the youngest child in the family. The older mothers have also the longest exposure to the military conflict, which in itself may desensitize the mothers to the needs of their infants (Lieberman & Van Horn, 2011).

The lack of association between the representational risks and emotional availability is in contradiction with the dysregulation, unattendance, and fearful arousal found in the qualitative analysis of the mothers' narratives. In line with previous studies (van Ee et al., 2012; the authors, 2017), we suggest that traumatized mothers' self-reports may produce unreliable results. In fact, self-reported interaction quality is a type of maternal representation of the relationship, and hence subject to distortions. The Palestinian mothers' tendency to produce views of their overall caregiving, rather than focus on the relationship with the specific child, may further limit the validity of their self-reports on dyadic interactions.

It is also notable that the Emotional Availability questionnaire is premised on maternal sensitivity, which may not be the central feature for capturing risks among traumatized Middle-Eastern dyads. Dysregulating, such as hostile-frightening and fearful-withdrawn caregiving behaviors, predicts attachment disorganization more strongly than lack of maternal sensitivity (Haltigan et al., 2017; van IJzendoorn, Schuengel, & Bakermans-Kranenburg, 1999). Moreover, proximity and concrete help, rather than emotional attunement, have been shown to support Palestinian children's optimal development (Feldman & Masalha, 2006; Morelli et al., 2017). Future studies are needed to evaluate how risks in war-exposed mothers' representations are linked with dysregulating interactions, as well as with culturally salient variations of parenting behaviors. Furthermore, as infants are also exposed to traumatic war events, research is needed that considers the effects of infants' own post-traumatic symptoms on relational dysregulation.

Strengths and Limitations of the Study

The strengths of this study include its prospective, longitudinal nature; its investigation of a very hard-to-reach, high-risk, and understudied group of mothers and infants; and its combination of quantitative and qualitative approaches to analyzing maternal representations. Furthermore, the exploratory nature of the study precluded pre-fixed assumptions about the high-risk structure of caregiving representations among the Palestinian mothers. However, the exploratory approach also

poses limitations. Confirmatory analyses are needed to verify whether the identified structure of risk dimensions characterize maternal representations in other war-traumatized groups. In the current analysis, cross-loadings for some items, especially *incoherence*, were ignored; thus, the Dysregulating and Unavailable dimensions might provide an overly simplified view of risks.

Due to the small sample size, our results should be considered as tentative. As the number of participants was close to the minimum required for EFA, reliability of the results may be limited. In other analyses, the limited sample size meant only medium-sized and larger effects could be detected. Thus, some links between pre- and postnatal war trauma, mental health symptoms, mothers' high-risk representations, and mother-infant interaction may not have been detected.

Further limitations of this study concern measures. First, although the EPDS, PDI, and EA measures were translated and back-translated, they were not recalibrated during the translation process. Second, mother-infant interaction was assessed via a self-report measure with a focus on maternal sensitivity, which may have resulted in certain risks in caregiving representations and behavior remaining undetected. To address this limitation, it would be advisable to use objective, video-recorded assessments of mother-infant interaction, as well as tools capturing dysregulating caregiving behavior (such as the AMBIANCE; Bronfman et al., 1999) in future studies of war-exposed dyads.

The focus of this study was limited to exploring the mother-infant relationship. However, Palestinian children commonly have several caregivers, including older siblings, the father, and extended family members. Thus, research is needed that considers the more complex risk and protective factors that wider family relationships pose on infants developing in war contexts (but see Feldman & Masalha, 2010). In addition, future research should investigate the resilience factors that are protective of, and not only risks to, caregiving representations in war conditions.

Clinical Implications

The current study shows that the chronic burdening that stems from living in a war context imposes risks on Palestinian mothers' caregiving representations. Coupled with high levels of depression originating in the prenatal period and continuing into postpartum in tandem with PTSD symptoms, this likely significantly compromises the mothers' ability to care for their infants. While finding a political solution to the Palestine-Israel conflict would certainly benefit the families most, in the meanwhile it is necessary to alleviate the mothers' burden by all possible means. This includes family-centered mental health services, peer support, practical help, and family planning. Early recognition of very negative, emotionally overwhelmed, or fearful maternal representations during pregnancy may help in identifying mothers whose caregiving is at the highest risk. Prenatal interventions would help these mothers' preparation for caregiving, and protect their infants from the harmful effects of maternal prenatal stress.

Although the Palestinian mothers were perhaps unaccustomed to thinking about the dyadic relationship with their infant as separate from their holistic caregiving role, probing about caregiving to the specific child revealed various risks for the infants' development. Interventions that help war-exposed mothers interpret their infants' attachment needs in a less malevolent way, and that provide information on the harmful effects of dysregulating interactions, could perhaps protect the war-exposed children's development and restore the mothers' sense of themselves as 'good-enough' mothers. Mothers' representations as caregivers to extended families should be respectfully taken as starting points for such interventions.

The pervasive high-stress environment in which war-exposed families live is likely to create wider dysfunctionality in relationships between members of the household (Wadsworth, 2010). Home-based interventions that include all willing family members could protect Palestinian infants' development by strengthening relationships with their numerous caregivers.

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