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Résumé de l'article

Nous avons examiné le syndrome de stress post-traumatique et les symptômes dépressifs chez les mères réfugiées ainsi que les liens entre le traumatisme maternel, la sécurité de l'attachement et les comportements d'internalisation et d'externalisation chez l'enfant. Les résultats obtenus auprès de 36 mères d'enfants âgés entre 18 et 70 mois indiquent que bien que 94,4% des mères aient rapporté avoir vécu un traumatisme, seulement 2,8% d'entre elles ont rapporté avoir des symptômes cliniques de stress post-traumatique élevés. Une corrélation a été établie entre les symptômes maternels de stress post-traumatique et les comportements d'internalisation et d'externalisation chez l'enfant. Une corrélation négative a été établie entre la sécurité de l'attachement et les comportements d'internalisation et d'externalisation. La sécurité de l'attachement avait un effet modérateur sur la relation entre les symptômes de stress post-traumatique et les comportements d'externalisation, tandis que les symptômes de stress post-traumatique prédisaient des comportements d'externalisation chez les enfants présentant un faible niveau de sécurité de l'attachement seulement. Ces résultats suggèrent que la sécurité de l'attachement chez l'enfant pourrait protéger contre le traumatisme maternel.

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# Examining Associations between Maternal Trauma, Child Attachment Security, and Child Behaviours in Refugee Families

Jennifer Barnes<sup>a</sup> and Jennifer Theule<sup>b</sup> 

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## ABSTRACT

We examined post-traumatic stress disorder (PTSD) and depressive symptoms in refugee mothers and the relationships between maternal trauma, child attachment security, and child internalizing and externalizing behaviours. Results from 36 mothers of children 18–70 months old indicated that while 94.4% of mothers reported experiencing trauma, only 2.8% reported clinically elevated PTSD symptoms. Maternal PTSD symptoms were correlated with child internalizing and externalizing behaviours. Attachment security was negatively correlated with internalizing and externalizing behaviours. Attachment security moderated the relationship between PTSD symptoms and externalizing behaviours; PTSD symptoms predicted externalizing behaviours for children with low attachment security only. This suggests that child attachment security may protect against maternal trauma.

## KEYWORDS

attachment; trauma; depression; refugee; mother–child

## RESUMÉ

Nous avons examiné le syndrome de stress post-traumatique et les symptômes dépressifs chez les mères réfugiées ainsi que les liens entre le traumatisme maternel, la sécurité de l'attachement et les comportements d'internalisation et d'externalisation chez l'enfant. Les résultats obtenus auprès de 36 mères d'enfants âgés entre 18 et 70 mois indiquent que bien que 94,4% des mères aient rapporté avoir vécu un traumatisme, seulement 2,8% d'entre elles ont rapporté avoir des symptômes cliniques de stress post-traumatique élevés. Une corrélation a été établie entre les symptômes maternels de stress post-traumatique et les comportements d'internalisation et d'externalisation chez l'enfant. Une corrélation négative a été établie entre la sécurité de l'attachement et les comportements d'internalisation et d'externalisation. La sécurité de l'attachement avait un effet modérateur sur la relation entre les symptômes de stress post-traumatique et les comportements d'externalisation, tandis que les symptômes de stress post-traumatique prédisaient des comportements d'externalisation chez les enfants présentant un faible niveau de sécurité de l'attachement seulement. Ces résultats suggèrent que la sécurité de l'attachement chez l'enfant pourrait protéger contre le traumatisme maternel.

Refugees are subjected to a long and arduous road before they are able to settle in their host country. Given the intense trauma and psychological stress refugees have often undergone, they are at high risk for the development of serious mental health conditions, including post-traumatic stress

disorder (PTSD) and other co-morbid conditions (Nakeyar & Frewen, 2016). PTSD can involve a variety of symptoms, including intrusion symptoms, avoidance, negative cognitions and mood, alterations in arousal, and emotional numbing (American Psychiatric Association [APA], 2013). A system-

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atic review conducted in 2005 confirmed the extent of the traumatic distress this population undergoes; the results indicated that 9% of refugees resettled in Western countries were diagnosed with PTSD, and 5% were diagnosed with major depression, with substantial psychiatric co-morbidity noted (Fazel et al., 2005). Furthermore, among refugees with identified risk factors (i.e., being female, having a past mental health diagnosis, and experiencing two or more traumatic events), the probability of being diagnosed with PTSD was 71%.

Trauma-related disorders such as PTSD have been hypothesized to negatively impact the mother-child relationship in a number of ways. A systematic review revealed multiple studies that showed higher PTSD symptoms were related to lower maternal sensitivity (Cook et al., 2018). One area of child social-emotional development that is particularly important is a child's attachment security, which is the aspect of the parent-child relationship that makes a child feel safe, secure, and protected (Bowlby, 1982). A secure attachment style is an important component of healthy child social-emotional development and is integral for healthy functioning interpersonal relations later in life (Kobak et al., 2016). Insecure attachment, on the other hand, has been found to be a risk factor in the development of externalizing disorders (Guttmann-Steinmetz & Crowell, 2006) and internalizing disorders (Madigan et al., 2013). Externalizing behaviours are generally defined as behaviour problems in which distress is turned outwards, resulting in disruptive, hyperactive, and aggressive behaviours; these behaviours tend to negatively affect the individual's external environment (Liu, 2004). Internalizing behaviours, on the other hand, are generally defined as behaviour problems in which distress is turned inwards on the self, resulting in withdrawn, anxious,

inhibited, and depressed behaviours; these behaviours tend to affect the individual's internal psychological environment rather than the outside world (Liu, 2004). Additionally, a child's attachment non-security may contribute to the development of poor peer relationships (Groh et al., 2014), criminal behaviours (Ogilvie et al., 2014), and sexual offending (Baker et al., 2006). Research has demonstrated that attachment can be considered a universal, cross-cultural concept (e.g., Clayton, 2019).

Past research has demonstrated a strong relationship between maternal PTSD and non-secure attachment in their children, while positive mother-child relationships may reduce the likelihood and severity of later developmental issues in those exposed to trauma (Bosquet-Enlow et al., 2014). However, the relationship between maternal trauma and child attachment is vastly unexplored in refugee populations. One study examining the relationship between intra-family trauma communication style, children's attachment security, and psychosocial adjustment in refugee families found that parental trauma had a negative impact on children's behaviour, and a negative association was found between externalizing behavioural difficulties and the children's attachment security (Dalgaard et al., 2016). A study of Middle Eastern refugees in the Netherlands examined the relationship between parental PTSD, adverse parenting, and child attachment (van Ee et al., 2016), finding that parental PTSD symptoms were directly related to child attachment non-security and disorganization.

Based on this, the overarching goal of the current study was to explore the relationship between maternal trauma and child attachment security in a refugee population in order to help determine rates of trauma among refugee mothers and to gain insight

into the impact of this trauma on the attachment security and behavioural outcomes of their children. The primary research objectives were the following: (a) to expand on existing literature on refugee mental health by examining the rate of potentially traumatic experiences (PTE), PTSD-related symptoms, and depression in a sample of refugee mothers; (b) to determine the relationship between maternal PTSD symptoms, child attachment security, and externalizing/internalizing behaviours; and (c) to examine the moderating effect of child attachment on the relationship between maternal PTSD symptoms and child internalizing and externalizing behaviours.

## METHOD

### Recruitment and Sample

Refugee mothers and their children who were currently living in the Canadian cities of Winnipeg, Ottawa, Montreal, and Toronto were recruited for the study. To be eligible for the study, identified children within the mother-child dyad needed to be between 18 months old and 5 years and 11 months old at the time of the appointment, and mothers needed to be able to read English, French, Arabic, or Farsi.<sup>1</sup> Prior to recruitment, ethical approval for the study was obtained from the Psychology/Sociology Research Ethics Board at the University of Manitoba. Mother-child dyads were recruited from September 2018 to August 2019. Extensive recruitment strategies were utilized, including presentations and posters at refugee organizations, community centres, and mosques, but the majority of participants (69.4%) were recruited through a partnership with **The Migrant** (<https://the-migrant.com>), an Arabic/English newspaper

<sup>1</sup>No potential participants were excluded due to an inability to read.

that was founded in Montreal by a Syrian refugee.

Thirty-six mothers participated in the study, although a power analysis suggested that 56 would be needed to achieve power of 80% with alpha at .05 based on the effect observed in related studies.<sup>2</sup> Mothers' ages ranged from 26 to 43 years with a mean age of 32.74 (SD = 3.94). The children's ages ranged from 18 months to 70 months, with a mean age of 44.50 months (SD = 14.36). Slightly more than half of the children (55.6%) were female. Most of the children were born outside of Canada (83.3%). Mothers and their children had been in Canada between 2 and 103 months, with a mean time in Canada of 29.34 months (SD = 18.36). Only two (5.6%) of the mothers and their children had spent time in refugee camps—one for 2 days and one for 10 days. Most mothers were married (97.2%). The majority were from Syria (83.3%), with two others from Palestine, and one each from Uganda, Egypt, Nigeria, and Nicaragua. Most of the mothers were currently unemployed (89.9%). Many had completed at least some post-secondary education (91.7%).

### Data Collection and Measures

Three-hour appointments were scheduled with the participants either in their homes or in **The Migrant** office. The primary investigator was accompanied (always when needed and whenever else possible) by Arabic-speaking psychology research assistants to assist with double-coding for the attachment measure to determine interrater reliability and to assist with verbal translation. At the beginning of the appointment, the mothers read the consent form and provided

<sup>2</sup>Power refers to the likelihood that a statistical test will detect an effect when there truly is one; that is, high power is desirable (Cohen, 1988). A power analysis can be used to determine the sample size required for a study to reach the desired power, effect size, and level of significance (Cohen, 1988).

written consent; they were then given a questionnaire package. The consent forms as well as all questionnaires were provided in the language of the mother's choice (the options were English, French, Arabic, or Farsi, selected due to the availability of previously validated translations of all measures in these languages). The primary investigator was fluent in French and English, and all participants were able to communicate verbally in French, English, or Arabic at a sufficient level to communicate orally (advertisements were provided in these languages only). While the mothers completed the questionnaires, the principal investigator observed the child's actions and then continued to observe the child and mother's interactions for the Attachment Q-Set until the end of the appointment. Mothers were provided with a small honorarium, and each child was given a small toy.

#### *Harvard Trauma Questionnaire*

Maternal trauma was assessed using the Harvard Trauma Questionnaire (HTQ; [Mollica et al., 1992](#)), a screening checklist created by the Harvard Program in Refugee Trauma. The HTQ was specifically developed to inquire about traumatic events and the emotional symptoms associated with trauma, and it has been translated into many languages and adapted for different populations. Only Parts 1 and 4 of the HTQ were included for use in this study as Part 2 asks an open-ended question (and this study was solely limited to quantitative data; qualitative data requires a different theoretical framework and methodology and was outside the scope of this study), and Part 3 focuses on potential brain injury. In Part 1, participants are asked to answer either "Yes" or "No" to a list of traumatic life events. In Part 4, participants respond to a series of trauma symptom items using a four-point Likert scale (1 = not at

all; 4 = extremely) for a number of PTSD symptoms. These PTSD symptoms can be counted and scored as they correspond with *Diagnostic and Statistical Manual of Mental Disorders*, fifth edition (DSM-IV) criteria for PTSD (this was the most updated version of the HTQ available at the time of the study) ([APA, 2013](#)). The HTQ criteria for PTSD is a cut-off score of 2.5. The HTQ has been found to have strong psychometric properties across its many different languages and versions (e.g., [Mollica et al., 1992](#)).

#### *Beck Depression Inventory*

Mothers' depression symptomology was assessed using one of the most widely used self-report questionnaires to assess depression: the Beck Depression Inventory (BDI-II; [Beck et al., 1996](#)). The BDI-II consists of a series of statements regarding depressive symptoms, and the participant responds on a four-point scale ranging from 0 to 3, picking out the statement that best describes how they have been feeling in the past two weeks. Scores are categorized as follows: minimal (scores of 0–13), mild (14–19), moderate (20–28), or severe (29–63) depression ([Beck et al., 1996](#)). The BDI-II has strong psychometric properties and high clinical utility, making it a popular choice for detecting depression and depressive symptomology in a variety of populations. The BDI-II has been translated into dozens of languages, including Arabic; high degrees of reliability and validity were also found in cross-cultural studies (e.g., [West, 1985](#)). The BDI-II has been found to be sensitive to change in depression cross-culturally ([Viljoen et al., 2003](#)).

#### *Child Behaviour Checklist (CBCL—Preschool Version)*

Child behaviours were measured through the use of the Child Behaviour Checklist (CBCL—Preschool Version; [Achenbach and](#)



Rescorla, 2001), which is a caregiver report used to identify problem behaviour in children. The preschooler version spans the ages of 1.5–5 years and can assess both internalizing and externalizing problems. The CBCL preschool edition contains a list of 100 behaviours. Caregivers rate how characteristic the behaviours are of the child from 0 (not true [as far as you know]) to 2 (very true or often true). The CBCL is linked to the DSM and can be utilized for quantifying diagnostic behaviour in a youth. Test–retest reliability is high across the scales (.80–.90), and interrater reliability was found to be stronger for inter-parent agreement than for agreement between a parent and a teacher. This measure is considered particularly useful in cross-cultural applications due to the diverse multicultural norms. The array of CBCL measures have been translated into over 100 languages. For example, an Arabic version yielded strong measures of reliability and validity in a cross-cultural study, indicating that it can be used reliability within this culture (Yunis et al., 2007).

### *Attachment Q-Set*

Mother–child attachment security was measured through the use of the Attachment Q-Set (Version 3) (AQS), which is an observational method that results in a continuous measure of attachment security (Waters, 1995). It involves 90 items that describe a child–caregiver relationship, all of which are assessed by the researcher during the observation session, which typically lasts two to four hours. The AQS is the most widely used attachment measure after the Strange Situation Procedure (SSP; Ainsworth et al., 1978). Additionally, the AQS has some significant strengths over the SSP, particularly with cross-cultural groups, as it may be more attuned to the secure-base behaviour of children from diverse backgrounds (van

IJzendoorn et al., 2004). First, the AQS is conducted with naturalistic observation, taking place in the child and caregiver’s home (or other environment as needed)—an ecologically valid context rather than a contrived laboratory setting, as is required by the SSP (Solomon & George, 2016). Furthermore, as it is primarily an observation of secure-base behaviour by the child (i.e., a balance between proximity-seeking and exploring), language is not an important component to this measure, making it ideal for non-English-speaking groups (Solomon & George, 2016). The AQS has been shown to have good convergent validity with the SSP ( $r = .31$ ) and excellent predictive validity with sensitivity measures ( $r = .39$ ; van IJzendoorn et al., 2004). Furthermore, studies have reported inter-observer reliability ranging from .72 to .95 (Solomon & George, 2016). For the current study, the interrater reliability of the AQS was determined by comparing the principal investigator’s AQS ratings to the AQS ratings of the most qualified research assistant. The intra-class coefficient was found to be .91, indicating excellent interrater reliability.

### **Data Analysis**

Upon completion of data collection, the data from the questionnaires were used to calculate composite scores for variables, and these were entered into SPSS. The data were checked for errors and missing values, of which there were none outside of the HTQ missing data (discussed below). In addition to the calculation of rates and Pearson correlation, moderator analyses were conducted to examine if the relationship between maternal trauma and child internalizing and externalizing behaviours was moderated by child attachment security. These analyses were conducted using Model 1 of Hayes (2013) PROCESS for IBM SPSS

Statistics. As recommended by Hayes (2009), 5,000 bias-corrected bootstrap samples were requested.<sup>3</sup>

## RESULTS

### Rates of Trauma, Depression, Attachment, and Child Variables

The majority of mothers ( $n = 34$ ) reported exposure to at least one type of potentially traumatic event on the HTQ; the two remaining women did not complete this section of the questionnaire. Regarding the types of PTEs most commonly experienced, almost half of the women ( $n = 17$ ) reported DSM Criterion A-type events for PTSD; these are defined as traumatic experiences where the person is exposed to, witnesses, or learns of actual or threatened death, serious injury, or sexual violence happening to a friend/family member (APA, 2013). For many of these women, this included witnessing torture, the murder of a friend, and the serious physical injury of friend due to landmine or combat situation. More than a third of the women ( $n = 15$ ) witnessed murder, chemical attacks on residential areas, or rotting corpses. A few ( $n = 7$ ) had also experienced the murder of a family member, witnessed rape, been the victim of rape, been kidnapped, or been tortured.

For PTSD-related symptoms, the mothers were divided into groups based on whether they were above or below the HTQ criteria for PTSD. Only one mother reported clinical levels of PTSD symptoms. Five other women (14% of the sample) reported moderate symptoms (i.e., above 2.0). The remainder ( $n = 30$ , 83.3%) reported minimal PTSD symptoms. HTQ symptom scores ranged from 1 to 2.93 ( $M = 1.52$ ,  $SD = 0.44$ ).

For depressive symptomology, mothers were categorized based on the BDI ranges. Six of the women (16.7%) reported mild symptoms of depression and five (13.9%) reported moderate symptoms. The remainder reported minimal depressive symptoms ( $n = 25$ , 69.4%); no participants reported severe depressive symptomology. BDI scores ranged from 1 to 48 ( $M = 10.81$ ,  $SD = 10.53$ ).

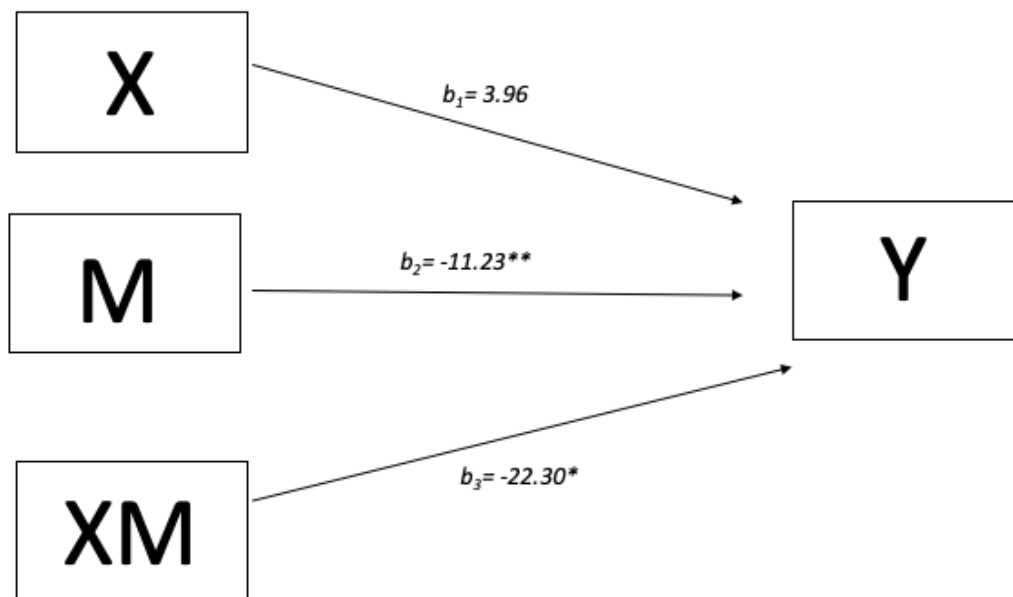
Child internalizing scores on the CBCL ranged from 0 to 46 ( $M = 13.56$ ,  $SD = 10.08$ ) out of a possible total range of 0–72, and externalizing scores ranged from 2 to 36 ( $M = 10.39$ ,  $SD = 7.35$ ) out of a possible total range of 0–48. AQS scores ranged from  $-0.42$  to  $0.62$  ( $M = 0.16$ ,  $SD = 0.28$ ) out of a possible total range of  $-1.0$  to  $1.0$  (with higher values indicating a greater degree of attachment security).

### Relationships Between Trauma, Child Attachment Security, and Problem Behaviours

Maternal exposure to PTE was not significantly related to child attachment security ( $r = -.009$ ,  $p = .960$ ), child internalizing behaviours ( $r = .136$ ,  $p = .429$ ), or child externalizing behaviours ( $r = .226$ ,  $p = .185$ ). Maternal trauma symptom severity, on the other hand, was strongly and positively related to child internalizing problems ( $r = .530$ ,  $p = .001$ ) and child externalizing problems ( $r = .445$ ,  $p = .005$ ). However, maternal trauma symptom severity was not significantly associated with child attachment security ( $r = -.109$ ,  $p = .527$ ). Child attachment security was strongly and negatively related to child internalizing problems ( $r = -.400$ ,  $p = .016$ ) and child externalizing problems ( $r = -.408$ ,  $p = .014$ ). Finally, maternal depression was not significantly related to child attachment security ( $r = -.225$ ,  $p = .188$ ), but maternal depression was strongly and positively related to maternal trauma symptom severity

<sup>3</sup>In the context of moderation analysis, bootstrapping is a statistical procedure used to test the significance of an indirect effect (Hayes, 2009).

**Figure 1** Statistical Diagram of the Conditional Effects of Maternal Trauma Symptoms on Child Externalizing Problems Moderated by Attachment Security.



( $r = .780$ ,  $p < .001$ ), as well as child internalizing ( $r = .709$ ,  $p < .001$ ) and externalizing ( $r = .487$ ,  $p < .01$ ) problems.

### Role of Attachment Security as a Moderator

The first moderation model, examining the relationship between maternal PTSD symptoms and child externalizing behaviours moderated by attachment security, was significant— $F(3,32) = 8.69$ ,  $p < .001$ —accounting for 45% of the overall variance in child externalizing behaviours ( $R^2 = .449$ ). Maternal PTSD symptoms were not found to be a significant predictor of child externalizing symptoms:  $b(32) = 3.96$ ,  $p = .124$ . Child attachment security was found to be a significant predictor of externalizing symptoms:  $b(32) = -11.23$ ,  $p = .003$  (i.e., increased attachment security is related to decreased child externalizing symptoms). The interaction between maternal PTSD symptoms and child attachment security was found to be significant:  $b(32) = -22.30$ ,  $p = .016$ . Therefore, the addition of the interaction resulted in a significant change to the model:

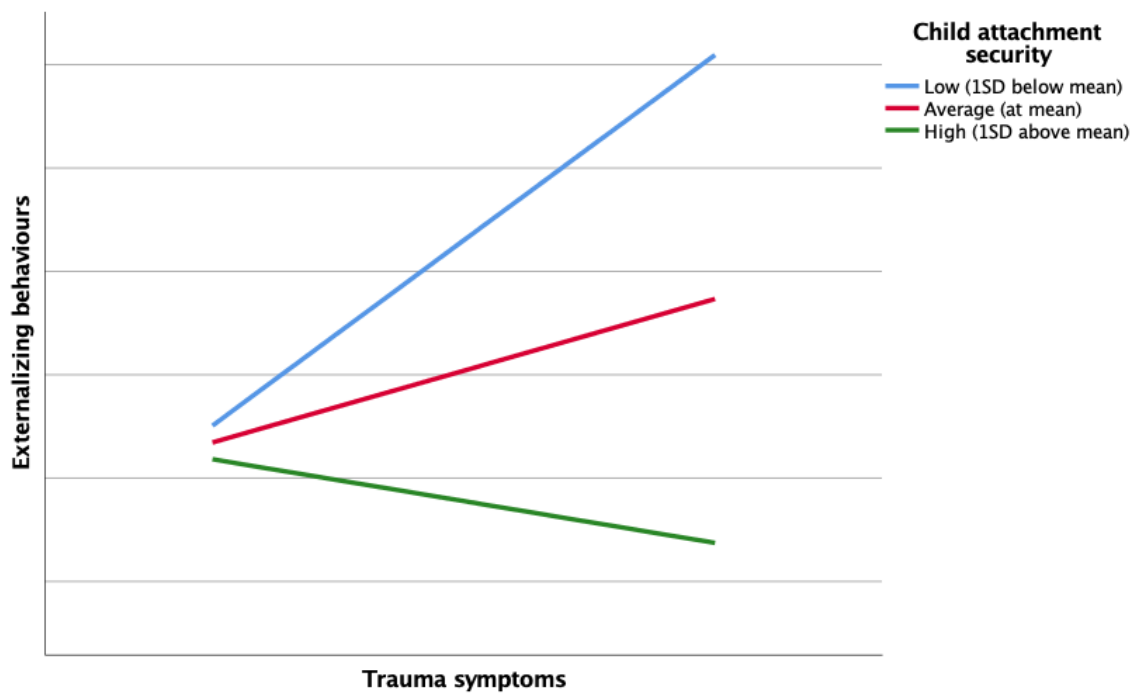
$F(1,32) = 6.5312$ ,  $p = .016$ ,  $R^2$  change = 0.113. **Figure 1** illustrates a statistical model representation of these relationships.

Due to the significant interaction, the simple slopes were also examined to interpret the conditional effects. At one standard deviation below the mean (i.e., attachment  $-0.2808$  below mean), the relationship was significant:  $b = 10.22$ ,  $t(32) = 4.00$ ,  $p = .003$ . Therefore, for those with low attachment security, maternal trauma does predict externalizing behaviours. At the mean (i.e., attachment mean), the relationship was not significant:  $b = 3.96$ ,  $t(32) = 1.58$ ,  $p = .124$ . Similarly, at one standard deviation above the mean (i.e., attachment  $0.2808$  above the mean), the relationship was also not significant:  $b = -2.31$ ,  $t(32) = -.54$ ,  $p = .591$ . Therefore, for average and high rates of attachment security, maternal PTSD symptoms do not predict externalizing behaviours. **Figure 2** presents a graphical representation of this interaction.

The second moderation model, examining the relationship between maternal PTSD symptoms and child internalizing behaviours



**Figure 2** Interaction Between Maternal Trauma Symptoms and Child Attachment Security on Child Externalizing Problems.

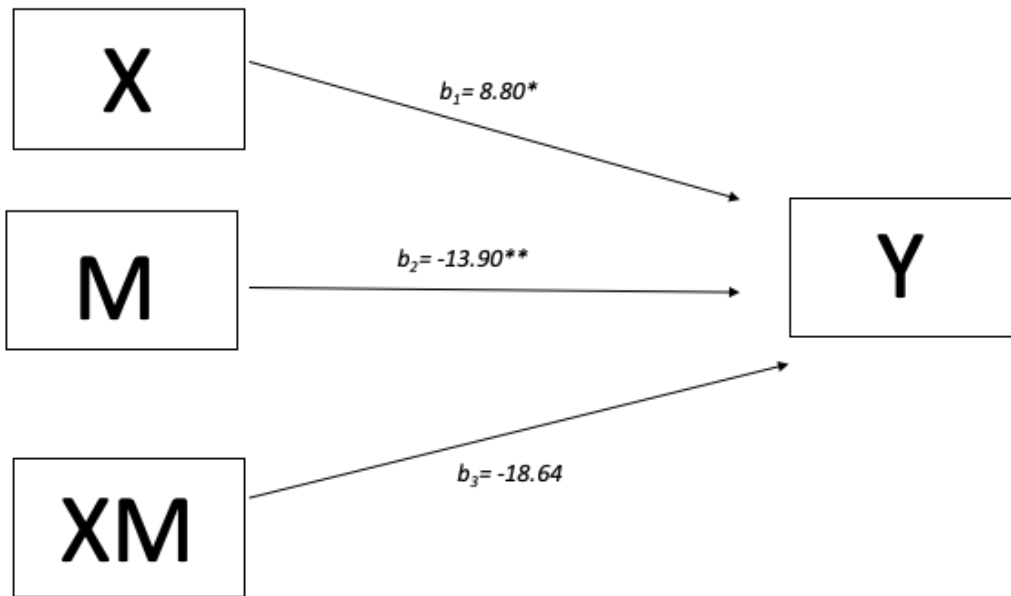


moderated by attachment security, was also significant— $F(3,32) = 8.41, p < .001$ —accounting for 44% of the overall variance in child internalizing behaviours ( $R^2 = .441$ ). Maternal PTSD symptoms were found to be a significant predictor of child internalizing symptoms:  $b(32) = 8.80, p = .016$  (i.e., increased maternal PTSD symptoms related to increased child internalizing symptoms). Child attachment security was found to be a significant predictor of internalizing symptoms:  $b(32) = -13.90, p = .008$  (i.e., increased attachment security was associated with decreased child internalizing symptoms). However, the interaction between maternal PTSD symptoms and child attachment security was not found to be significant:  $b(32) = -18.64, p = .132$ . [Figure 3](#) illustrates a statistical model representation of these relationships and [Figure 4](#) presents a graphic representation of the interactions.

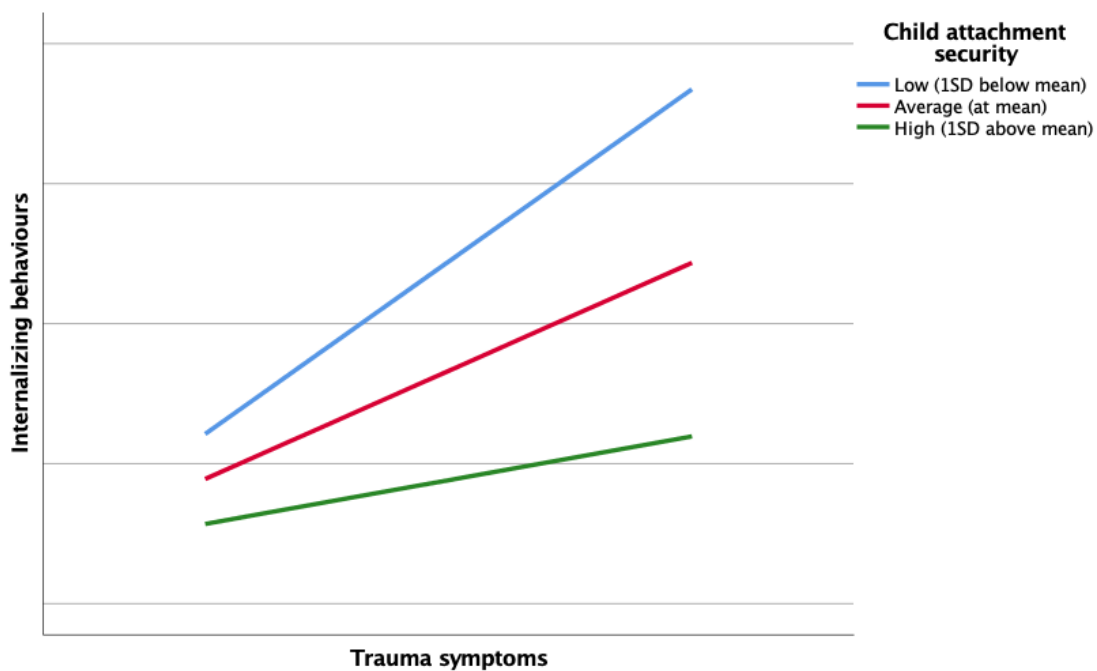
## DISCUSSION

As expected, almost all of the mothers in our sample endorsed that they had experienced at least one type of PTE, and almost half of the women reported experiencing Criterion A-type events for PTSD. However, despite the significant types of PTEs experienced, only one mother experienced a level of symptomology consistent with a clinical diagnosis of PTSD. Five other mothers reported moderate symptoms of PTSD, while most reported minimal symptoms. This is a much lower rate than expected, and it is much lower than rates found in typical refugee samples. For example, in a large-scale study conducted with Syrian refugees in a tent city in Turkey, 33.5% met diagnostic criteria for PTSD, and being a woman and experiencing more than two traumatic events increased the likelihood of diagnosis ([Alpak et al., 2015](#)). Similarly, a study of Syrian refugees who had resettled in Sweden also found that 30% met the cut-off score for PTSD based on the HTQ ([Cheung Chung et al., 2018](#)). The average

**Figure 3** Statistical Diagram of the Conditional Effects of Maternal Trauma Symptoms on Child Internalizing Problems Moderated by Attachment Security.



**Figure 4** Interaction Between Maternal Trauma Symptoms and Child Attachment Security on Child Internalizing Problems.



symptom severity score on the HTQ in the current study of 1.52 (with a range from 0 to 2.93) was also significantly lower than a study from 2018, which used the HTQ with a large group of Syrian refugees in Jordan, where the average score was 2.37 (with a range from 1 to 3.88; Rizkalla & Segal, 2018).

However, the PTSD prevalence rate within the current study was more similar to that found in a study of Syrian refugees resettled in Germany; PTSD symptoms were found in 11.4% of the population (Georgiadou et al., 2018). The PTSD prevalence rate found in this study was also consistent with the PTSD

prevalence rate of 16.7% from a small study of 12 refugee women in Canada (Ahmed et al., 2017).

We also found that relatively low percentages of our sample reported mild and moderate depressive symptoms, with no participants reporting severe depressive symptomology. Similar to the PTSD rates, this was much lower than suggested by the literature. For example, the study conducted in Germany found that 14.5% of the participants had moderate to severe depressive symptomology (Georgiadou et al., 2018), a study conducted in Canada found that over half the participants screened positive for possible depression (Ahmed et al., 2017), and a study conducted in Iraq reported that 59% of the participants met the cut-off for likely major depressive disorder (Mahmood et al., 2019).

There are many potential reasons for the wide range in prevalence of PTSD and depression found within refugee populations, as well as why the population in the current study reported lower rates. The representativeness of the sample is an important factor to consider. For example, the recruitment strategies used for this study could have resulted in a "relatively healthy" sample of mothers, as the mothers had to self-select to participate in the study and feel comfortable enough to have researchers enter their homes. Additionally, the majority (94.4%) of the refugees in the current sample had not spent any time in a refugee camp. Of the two participants who had, both stayed in the camps for less than two weeks. Extended stays in refugee camps are significantly correlated with both PTSD and depression symptoms (Mahmood et al., 2019), and dissatisfaction with camp conditions is linked with depressive experiences (Garthus-Niegel et al., 2017). A related possible explanation for the difference in PTSD prevalence rates between

this study and others is the influence of the country of resettlement. For example, the studies highlighted above showed that refugees who have resettled in countries such as Germany and Canada have lower psychological distress and lower PTSD symptoms than those resettled in countries such as Iraq or Turkey. This hypothesis fits with the notion that post-migration factors can be potential sources of distress that can contribute to mental health disorders, including maintaining PTSD symptoms (Hynie, 2018). Canada has a well-established program for welcoming refugees, with both government and privately funded sponsorships available. Under the Resettlement Assistance Program, the Government of Canada provides income support and housing assistance for up to a year, and private sponsors are financially and emotionally responsible for refugees for at least a year (and up to three). This system of support may play a critical role in decreasing post-traumatic stress symptoms.

In regard to child outcomes, some mothers reported very minimal child behavioural problems, while others reported higher levels of child externalizing behaviours; child internalizing behaviours were generally not strongly reported, and the number of problems overall was quite low. While research in this area is limited, past studies have shown high levels of both externalizing behaviours (e.g., Henley & Robinson, 2011) and internalizing behaviours (e.g., Bronstein & Montgomery, 2011) in refugee children. A study in Germany that examined the mental health status of young (1.5–5-year-old) refugee children from Iraq and Syria found that both parents and caretakers reported more mental health problems in refugee children than in non-refugee children, especially for internalizing behaviour difficulties (Buchmüller et al., 2018). Therefore, the current sample of children appeared to have fewer

problem behaviours than those in other refugee samples, similar to the lower mental health rates in their mothers compared with other maternal refugee samples as discussed above. However, in the current study, child attachment security levels were observed to cover a wide range. While it is not generally recommended to describe AQS scores in dichotomous (i.e., secure/non-secure) terms, Waters (n.d.) has suggested that a mean score of .30 could be used as a cut-off, and a recent meta-analysis found that the mean security score of the AQS was .35 (Cadman et al., 2018). The current sample had a mean score of .16 on the AQS, suggesting that children in this sample showed less secure attachment than the typical population.

Despite the lower-than-expected severity of symptoms, maternal trauma symptom severity was strongly and positively correlated with both child internalizing and externalizing behaviours. Child internalizing and externalizing behaviours were also positively correlated with maternal depressive symptoms. Maternal PTSD symptoms negatively impact child social-emotional development (Garthus-Niegel et al., 2017). A growing body of research indicates that caregiver mental health may be a crucial factor affecting the outcomes of children affected by war (Sim et al., 2018). A systematic review looking at the effects of war, terrorism, and armed conflict on young children found strong relationships between parental distress and child distress (Slone & Mann, 2016). Studies have also found that maternal PTSD symptoms increase the risk of children's PTSD symptoms and behavioural problems and that maternal depression is related to child behaviour problems (e.g., Trapolini et al., 2007).

Surprisingly, in the current study, maternal PTSD symptoms were not correlated with child attachment security. As discussed pre-

viously, there has been a paucity of studies examining the impact of maternal PTSD on child attachment; however, the few studies that have been conducted tend to support a negative association between maternal trauma and child attachment security (e.g., Bosquet-Enlow et al., 2014; van Ee et al., 2016). Child attachment security was also not correlated with maternal depression, which is highly discrepant with the strong support in the literature for this relationship. Multiple meta-analyses have found strong relationships between maternal depression and child attachment non-security (e.g., Barnes & Theule, 2019; Martins & Gaffan, 2000). One possibility for this discrepant result is the effect of other family members on the children's attachment security; past research has shown that living with family members can have a buffering effect on traumatic experiences for refugee children (Atkinson et al., 2000). In the current study, 97.2% of the mothers were married, and most were living with their husbands or with extended family members. Fathers' attachment to and involvement with their children has been found to be a strong protective factor for refugee children's development across the lifespan (Hodes et al., 2008). Another possibility is that while the mothers in the current study had experienced trauma, the PTSD symptoms were generally less severe than expected, making it less likely that they would impact their interactions with their children. Relatedly, despite their PTEs, the mothers may have resiliently found ways to prevent their experiences and symptoms from impacting their interactions with their children. For example, in a study examining the intergenerational effects of war trauma in Palestinian families, maternal trauma was not significantly related to child attachment insecurity, and these mothers were actually

found to respond more positively to their children (Gere et al., 2013).

Despite child attachment security not being correlated with maternal trauma, it was strongly and negatively correlated with child internalizing and externalizing problem behaviours in this study. This is consistent with the large body of literature that has shown that there are strong relationships between child attachment non-security and both internalizing (Palosaari et al., 2013) and externalizing disorders (Madigan et al., 2013). Attachment theory suggests that anxiety and depression can develop from children's uncertainty about the availability of their caregiver and their ability to respond to their attachment needs (Fearon et al., 2010). Due to the stressful nature of being a refugee both pre- and post-migration, it is possible that while maternal trauma itself did not affect child attachment security, the mothers' general life circumstances may have impacted them as parents.

Finally, the results of the moderator analyses demonstrated that the relationship between maternal PTSD symptoms and child externalizing behaviours was moderated by attachment security, with maternal PTSD symptoms predicting externalizing behaviours only for those children with low attachment security. Interestingly, this pattern was not found for internalizing behaviours. It appears that strong child attachment security can buffer the effect of maternal PTSD symptoms on children's development of externalizing behaviours. It is important to consider the difference in this protective factor in more detail, as well as to consider the different mechanisms that may be at play in these relationships.

Strong child attachment security may have a buffering effect on externalizing behaviours in a number of ways. A meta-analysis on the relationship between attachment se-

curity and externalizing behaviours noted that some of the mechanisms in this relationship include a developing sense of self-confidence, generalized positive social expectations, socialization of moral emotions and values, modelling of pro-social behaviour by a sensitive caregiver, continuity in the quality and supportiveness of ongoing parental care, the capacity for effective emotion regulation, and the social modulation of biological systems mediating stress and arousal regulation (De Haene et al., 2013).

Attachment security was not found to be a protective factor for internalizing behaviours in children. One of the mechanisms by which child attachment security may promote a decrease in internalizing behaviours is through child attachment security's link with emotional understanding through parental scaffolding (Guttman-Steinmetz & Crowell, 2006). Emotional intelligence has been found to partially mediate the relationship between attachment security and internalizing behaviours (Greig & Howe, 2001). Parental open communication about emotions has been shown to help develop socio-emotional competence in their children, and emotional openness within families is important in the recovery process following trauma (Reker, 2003). However, a study conducted in Gaza demonstrated that trauma and mental health difficulties can interfere with a mother's ability to share experiences about war and trauma and to be sensitive and encouraging to her children (Lutz et al., 2007). Mothers with trauma are often hesitant to discuss painful experiences with their children; however, research has shown that there are strong beneficial effects of sharing and talking about family tragedies and painful memories (Qouta et al., 2005). That said, this issue is complex in refugee families where parental silence regarding trauma may be appropriate (Dalgaard et al.,



2016). Further to the effects of trauma, if mothers have not always been consistently available, perhaps due to stressful life events associated with refugee status, this can result in a vulnerability to the development of internalizing disorders.

## CONCLUSION

This study has number of important limitations to consider. First, regarding methodological limitations, perhaps the most significant was the sample size. Our sample size likely impacted our ability to observe some potentially important relationships. It is also important to note that refugees (unless they arrive as asylum seekers) are selected for resettlement in Canada, which could have an effect on findings.

Self-selection into the study is another limitation to consider. It is likely that refugee women who volunteered to participate in a research study of this nature have a number of differing characteristics from those who did not. The current sample very possibly presents a group of "less"-traumatized refugees who may not be representative of the more general refugee population (e.g., being highly educated).<sup>4</sup> Refugee mothers with significant trauma and/or significant depressive symptoms are much less likely to volunteer for research studies, generally, but especially for a research study inquiring into the effects of trauma.

Another methodological limitation was the use of questionnaires within this study. While only questionnaires that had already been previously translated and validated for the different languages and general populations for which they were intended were used, few questionnaires are designed specifically for refugees. In addition, self-report

questionnaires invite strong potential for bias, including under-reporting of symptoms (Althubaiti, 2016). Furthermore, the measures and constructs under consideration may have varied across languages and cultures and may have prioritized a Western viewpoint. Additionally, it should be noted that at the time of recruitment, only the HTQ based on the DSM-IV criteria for PTSD was available; the HTQ-5 based on the DSM-IV criteria was published in 2019 (Madigan et al., 2013). As the diagnostic criteria for PTSD have changed significantly, the use of an older version may have made it more difficult to establish an accurate rating of PTSD within this population. It is recommended that future research use the updated HTQ-5. We also failed to ask participants about supports and programs accessed in Canada, which may be important variables. Another methodological limitation was that children's direct trauma exposure was not considered; future research should assess for this important variable.

A final limitation is related to family variables. Little information was collected on fathers or other co-parenting partners or child siblings. Future research should consider these important variables. Finally, it is also important to consider culture-related limitations. There are many cultural barriers, including stigma around mental health. A recent systematic review, which investigated refugees' perceptions of mental health as well as barriers to seeking help for mental health difficulties, showed that in 24 out of 26 studies included in the quantitative review, participants spoke about mental health in a negative manner (Berthold et al., 2019). Refugees across many studies have reported shame and disapproval from both family members and the greater community related to mental illness, along with the fear of being discriminated against and ostracized

<sup>4</sup>Please note that no data were collected regarding whether families in our sample were government-sponsored or privately sponsored refugees. As there can be significant differences between these groups, this may have impacted our findings.

from their community (Byrow et al., 2020). That said, it is important to acknowledge the considerable stigma that exists in regard to mental health problems in Canadian culture generally (see Abbey et al., 2011). Another major barrier in the way of mental health help-seeking behaviours is the profound lack of trust in others (including authority figures) that many refugees have developed through their experiences (Byrow et al., 2020). Privacy and confidentiality are significant concerns within this population, and sometimes these fears are specifically related to the fear that any information disclosed may affect the safety of family members still residing in their home countries (Byrow et al., 2020). These types of fears likely prevented some potential participants from becoming involved in the current study; indeed, one potential participant decided not to participate after reading the consent form and having concerns about how her answers might be used.

Regarding strengths, the current study is one of the first of its kind to consider refugee mothers' and children's mental health needs in Canada. Though there has been an increase in research on refugees internationally, research on refugees resettled in Canada has remained scarce. Because post-migration factors and country of resettlement can have a significant influence on coping, adjustment, and well-being, it is important to have research that considers the unique population of refugees in Canada.

Ours is also one of the few studies internationally that has considered attachment security within the refugee population. Given all that we know of the importance of secure attachment and its correlations with positive life outcomes, this is an incredibly important variable to consider in this population. While attachment security was not directly related to maternal trauma in this study, it was related to child outcomes and was found to be

a protective factor against the development of externalizing behaviours in the face of maternal PTSD symptoms. This is a significant contribution to the literature on refugee mental health, providing a platform for the development of appropriate supports, resources, and interventions. A qualitative study conducted in Canada considered the variables that affect refugees' willingness to participate in health research (Byrow et al., 2020), and the current study closely aligned with its recommendations, suggesting that the study as a whole was well-designed, was sensitive to this population, and likely resulted in the best possible recruitment given the constraints, despite exposure to war being cited as one of the variables that decreases willingness to participate.

Despite the identified limitations of this study, its results provide valuable information about refugee mental health needs within Canada. Rates of depressive and PTSD-related symptomology were reported and found to be quite low compared with those reported in previous research. However, maternal PTSD symptoms were found to be related to child internalizing and externalizing behaviours, which can be early warning signs for the development of later, more significant mental health problems in childhood, adolescence, and adulthood. With child attachment security found to be a protective factor against the development of externalizing behaviours in the face of maternal trauma, further work should be conducted to evaluate the different mechanisms through which maternal trauma impacts children, as well as how evidence-based attachment interventions may be culturally adapted to meet the needs of refugee families. Studies such as this one are the first step in understanding some of the key variables that interact with the experience of trauma, which is necessary for the development and

implementation of culturally appropriate interventions to foster optimal child development and child mental health.

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