

Incidence Of Post-Traumatic Stress Disorder Among Newcomers in Southeast Alberta

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Abstract

This study employed a cross-sectional design to examine the prevalence and predictors of probable post-traumatic stress disorder (PTSD) among newcomers in Brooks, Southeast Alberta, Canada. Brooks has the highest immigrant-density population in a rural region in Canada (Statistics Canada, 2022), and there is no previous research examining PTSD rates in this population. Data for the study were collected through validated instruments, including the PTSD Checklist and Life Event Checklist. The analysis of the data shows that among these newcomers, nearly half met the criteria for probable PTSD, with refugees having a higher prevalence than non-refugees. For multivariable logistic regression, refugee status, cumulative trauma exposure, language barriers, and the challenges of adapting to a new culture were independently correlated with PTSD. Sensitivity analyses validated the evidence across various cut-off scores, indicating the robustness of the study's results. While these results support previous research highlighting PTSD rates among refugee populations, this study is of particular importance from a rural perspective.

Keywords: Immigrants, Mental Health, Newcomers, PTSD and Refugees

1.Introduction

Canada is host to immigrants and refugees from many countries (IRCC, 2025; Statistics Canada, 2022). As a country, it continues to welcome new immigrants to its population each year, including refugees (IRCC, 2025). In 2021, immigrants were 23% of the Canadian population (Statistics Canada, 2022). Over time, the pattern of migration to Canada has changed from predominantly immigrants from European countries (70% or more) to immigrants and refugees from countries that are experiencing political conflict, war, or genocide (Beiser, 2005). For instance, in 2021, most immigrants and refugees to Canada came from India, the Philippines, and Nigeria, however, refugees came from Iraq, Eritrea, Afghanistan, and Pakistan (Statistics Canada, 2022). Refugees have greater exposure to pre-immigration trauma and are at an increased risk of mental health consequences, including post-traumatic stress disorder (PTSD) [1-5].

PTSD is a mental health condition that manifests in some individuals who have been through or witnessed traumatic or scary events (World Health Organization, 2023). A natural disaster, an assault or serious accident, a military war or terrorist act, or the threat of death, sexual violence, or injury are examples of these events (World Health Organization, 2023). PTSD can become chronic and debilitating and is a condition that negatively impacts quality of life. People can develop PTSD at any age (National Institute of Mental Health, 2023). The symptoms people

exhibit when experiencing PTSD include severe anxiety, nightmares, persistent fears, and uncontrollable memories (Canadian Center for Occupational Health and Safety, 2022). Refugees or immigrants are one group of people exposed to these symptoms through pre- or post-migration trauma. For example, Teodorescu et al. (2012) found the prevalence and symptom load of psychiatric disorders among 61 refugees in Norway. Of these refugees, 82% were diagnosed with PTSD, 16% with Disorders of Extreme Stress Not Otherwise Specified (DESNOS), and 64% had major depressive disorder (MDD). In Canada, Pottie et al. (2011) discovered a 9% prevalence of PTSD in new immigrant refugee arrivals. The circumstances that lead people to become refugees or asylum seekers make them vulnerable to mental health issues (Phoenix Australia - Center for Posttraumatic Mental Health, 2020). These circumstances are of three major types: traumatic war exposure, loss of close family members or friends, and deprivation of basic human rights (Phoenix Australia - Center for Posttraumatic Mental Health, 2020). Due to these circumstances, individuals are forced to migrate (Global Migration Data Portal, 2024; Stankovic et al., 2021). Forced migration entails three phases: pre-migration, peri-migration, and post-migration phases (Phoenix Australia - Center for Posttraumatic Mental Health, 2020). The pre-migration phase is the first stage, which may involve torture, repeated extreme forms of violence, witnessing mass killings and rapes, and the targeted harm of children (Phoenix Australia - Center for Posttraumatic Mental

Health, 2020). This phase refers to the period of time before immigrants leave their country of origin (Mccallister, 2019). Peri-migration is the second phase associated with the transition process from the country of origin to the country of destination (Anastasiadou et al., 2024; Phoenix Australia - Center for Posttraumatic Mental Health, 2020). This phase is where immigrants encounter separation from immediate family, fear, and harassment during a long and dangerous journey (Mccallister, 2019; Phoenix Australia - Center for Posttraumatic Mental Health, 2020). Post-migration is the last phase, and it is the period of time that begins with the arrival of immigrants in their receiving countries (Mccallister, 2019). During the post-migration phase, refugees and immigrants experience social and economic adversities, such as learning a new language, gaining employment, isolation, and lack of social support (Mccallister, 2019; Phoenix Australia - Center for Posttraumatic Mental Health, 2020) [6- 12].

Under these three phases, immigrants and refugees are likely to experience significant trauma throughout their migration journey. The greater the exposure to trauma, the greater the likelihood of experiencing PTSD symptoms. Therefore, not all immigrants who experienced pre-migratory trauma will manifest symptoms. However, refugees are most at risk due to the added stress of living in refugee camps, being separated from immediate family, and having limited access to resources such as food and medical aid (Beiser, 2005). Risk of PTSD also differs according to trauma type. The WHO mental health survey reported that PTSD risk increased after exposure to interpersonal violence, an event common to refugees (Kessler et al., 2017). Studies have indicated that refugee populations living in Western countries often endure and report the highest rates of PTSD symptoms during displacement and suffer continuous hardships after arrival (Bogic et al., 2015; Fazel et al., 2005, 2012). In Canada, most immigrants and refugees enter through larger urban centers, while some newcomers settle in rural communities, such as Southeastern Alberta. The proportion of immigrants and refugees living in rural Alberta is roughly 11.4% of the population (Swanepoel et al., 2024). Living in rural communities poses more challenges for newcomers than staying in urban centers. For example, access to services such as medical care is more challenging for refugees in rural communities (Coumans & Wark, 2024). Despite this phenomenon, research on the impact of rural resettlement on newcomers' mental health is sparse. A recent qualitative study evaluated the challenges faced by several Syrian refugee families resettling in rural communities (Haugen, 2019). The researchers found that the rural communities welcomed the refugees and provided support to the newcomers. However, refugee families encountered some challenges, such as adapting to new social and cultural norms, the lack of available services, and transportation to school for children (Haugen, 2019). While most studies of the incidence of PTSD among immigrants focus on urban centers in Canada, this study focuses on rural settings. The aim of the study is to assess the incidence of PTSD among newcomers in Brooks, Southeast Alberta through a cross-sectional research design using quantitative survey data.

The study also examined the trauma and settlement related predictors among these newcomers [13- 18].

2. Methods

2.1. Study Setting and Target Population

This research was carried out in Brooks, an expanding municipality in southeastern Alberta. Brooks has a diversified population, and its economy is mostly based on agriculture and oil and gas (Ashton et al., 2015). Brooks has many services to help people who are moving to the Community, like Brooks and County Immigration Services (BCIS), the SPEC Association for Children and Families, and Family and Community Support Services (FCSS) (Action Canada, 2022). Brooks and District Child Development and Society, the Francophone Association of Brooks, and a few other groups also offer services. Brooks has the most culturally diverse population per capita in Canada (Action Canada, 2022). The newcomer population of Brooks has grown exponentially over the past 20 years. In 2001, immigrants accounted for roughly 11.0% of the town's population, on par with other rural areas of Alberta. However, according to the 2021 census, Brooks had a population of ~15,000, of which 37.1% were immigrants (Statistics Canada, 2022). The main reason for the population increase is that newcomers arrived in the region to meet the growing needs of the local employment market. The most recent data from the 2016 census reported that 40.06% of the immigrant population consists of Blacks (40.06%), 1,380 Filipinos, and 12.05% of Latin Americans (Statistics Canada, 2022). Some of these visible minorities took part in this study. In this study, data were gathered from 193 adult newcomers who have moved to Canada through refugee or non-refugee immigration pathways. These participants were residing in the study area at the time of data collection [19,20].

2.2. Sampling And Recruitment

The participants were recruited through a community-based convenience sampling in collaboration with Global Village, a local community center, and other local employers. Trained interviewers administered the interviews to the participants in person. Participation was voluntary, and no identifying information was collected from the participants. Inclusion criteria were (i) age 18 years or older, (ii) newcomer status, and (iii) residing in the study setting. Those excluded from the study were Indigenous people, long-time residents of Southeast Alberta, and international students who had migrated to Canada through normal immigration pathways.

2.3. Data Collection Procedures

The data was gathered at local community centers over several days. Several different venues were chosen in the community to increase participants' access. Data from the participants were collected through a structured questionnaire administered face-to-face. The structured questionnaire captured participant demographic characteristics, immigration history, exposure to or experience of traumatic events, PTSD symptoms, and post-migration resettlement challenges. Informed consent was provided in English or in their preferred language, both

orally and in writing. Translators were available at the venues to help with informed consent and to administer the questionnaires in the participants' preferred language. Questionnaires were completed either individually or orally with a researcher and translator if needed. Counsellors were available on-site for support, as well as a local doctor who is also a newcomer.

2.4. Measures

Demographic information was collected, including sex, age, marital status, and the highest level of education completed. Further, we assessed the participants' country of origin, their first language(s), time since immigration, and their immigration status (e.g., permanent resident, refugee, or temporary foreign worker). Participants were administered the PTSD Checklist Version 5 (PCL-5; Weathers et al., 2003), a 20-item self-report checklist to evaluate the presence and severity of PTSD symptoms. For each of the 20 symptoms as listed in the DSM-V according to a 0–4 rating scale, participants provide a rating of severity, with a score of 2 being clinically relevant. Scores were summed across 20 items, with total PTSD scores ranging between 0 and 80 points; higher scores represent the presence of more clinically relevant symptoms. A cutoff point of 33 is recommended when considering PTSD as a diagnosis. Participants were also given the Life Events Checklist (LEC-5; Weathers et al., 2003), a self-report tool used to identify an individual's exposure to potentially traumatic events often linked to significant psychological and emotional distress. The measure offers 17 common examples of traumatic events, which participants rate on a 6-point scale (1 = doesn't apply, 2 = not sure, 3 = part of my job, 4 = learned about it, 5 = witnessed it, and 6 = happened to me). Example items include: natural disaster and combat or exposure to a war zone. The LEC-5 is usually administered alongside the PTSD Checklist (PCL-5; Weathers et al., 2003), and both are widely used in research settings involving PTSD and trauma exposure (Elhai et al., 2005) [20,21].

2.5. Trauma Exposure

We used the LEC-5 to measure participants' experiences or exposure to traumatic events through their lifetime. Participants reported whether they had witnessed, experienced, learned about, or otherwise encountered

several potential traumatic events. A trauma exposure count was created by adding up the number of events for which any kind of exposure was reported. This allowed us to continue measuring cumulative trauma exposure.

2.6. Settlement-Related Stressors

We assessed post-migration stressors by adding items to the PCL-5 concerning challenges in adapting to a new culture and difficulties in acquiring or understanding a new language. We tested these variables as continuous measures in the same way as described above, with higher scores indicating more severe perceived difficulties.

2.7. Analyses

We employed descriptive statistics to summarize participant characteristics, PTSD symptoms, trauma exposure/experience, and settlement stressors. We also reported means and standard deviations as continuous variables, while frequencies and percentages were presented as categorical variables. In terms of investigating the determinants of the likelihood of PTSD among the study participants, multivariable binary logistic regression models were employed. The independent variables consisted of trauma exposure frequency, refugee status, challenges in cultural adaptation, age, language proficiency, and Canadian citizenship. Results are shown as odds ratios (ORs) with 95% confidence intervals (CIs). To assess the robustness of the study findings, sensitivity analyses were performed with an alternate PCL-5 cut-off (≥ 31). In addition to this, we performed stratified analyses for refugees and non-refugees. This is because in the data, there were a few cases of PTSD among non-refugees. Therefore, the stratified estimate for this group was seen as exploratory. Jamovi statistical software was used for the analyses, and the level of statistical significance was set at $p < 0.05$.

3. Results

3.1. Sample Characteristics

The socio-demographic data is presented in Table 1. The analysis included 193 newcomers residing in Southeast Alberta. The mean age of the participants was 38.0 years ($SD = 14.2$). The majority of participants were males (58.0%), and 66.8% were refugees. Most participants (74.1%) were permanent residents, while 19.7% were citizens of Canada.

Characteristic	Value
Age, mean (SD)	38.0 (14.2)
Male, %	58.0
Female, %	30.6
Refugee status, %	66.8
Permanent resident, %	74.1
Canadian citizen, %	19.7

Table 1: Demographic Characteristics of Participants (N = 193)

3.2. PTSD Symptom Severity and Prevalence

We used the PTSD Checklist (PCL-5; Weathers et al., 2003) to measure PTSD symptoms. Total PCL-5 values range from 0 to 52, with a mean score of 26.9 ($SD = 19.3$) and a median of 30.0.

Using a validated cut-off score of ≥ 33 , 48.7% of participants fulfilled the criteria for probable PTSD. Table 2 shows the descriptive data for the severity of PTSD symptoms.

Measure	Value
PCL total score, mean (SD)	26.88 (19.27)
Median (IQR)	30.0 (7.0–44.0)
Minimum–Maximum	0–52
PTSD prevalence (PCL $\geq$ 33), %	48.7

Table 2: PTSD Symptom Severity and Prevalence Among Newcomers (N = 193)

3.3. Trauma Exposure

In terms of trauma exposure measured by the LEC-5 (Weathers et al., 2003), what participants reported was significant. This is because the mean traumatic experiences are 10.1 (SD = 5.7), with a median of 11 and a range of 0 to 17. This reveals that the sample had a substantial cumulative trauma exposure.

3.4. Multivariable Logistic Regression Predicting PTSD Incidence

A multivariate logistic regression model was employed to ascertain predictors of PTSD incidence (PCL $\geq$ 33). The independent variable consisted of trauma exposure frequency, refugee status, challenges in cultural adaptation,

language proficiency, age, and Canadian citizenship. As presented in Table 3, refugee status was a key predictor of PTSD. These refugees had 7.76 times higher odds of meeting the criteria for PTSD than newcomers who were not refugees. There was also a strong correlation between PTSD and exposure to traumatic events. Additional experience or exposure to a traumatic event increased the odds of PTSD by almost 21%. In terms of settlement-related stressors, they remained independently linked to PTSD. This is because challenges in adapting to a new culture more than doubled the odds, with language difficulties increasing the odds by around twofold. In the adjusted model, age and being a Canadian citizen were not statistically significant predictors.

Predictor	OR	95% CI	p
Refugee status	7.46	1.77–31.34	0.006
Trauma exposure count	1.21	1.07–1.37	0.002
Difficulty adjusting to new culture	2.59	1.48–4.51	< .001
Difficulty with new language	1.86	1.10–3.16	0.021
Age	0.98	0.94–1.03	0.489
Canadian citizen	0.54	0.13–2.31	0.409

Table 3: Multivariable Logistic Regression Predicting PTSD Incidence (PCL $\geq$ 33)

3.5. Sensitivity Analysis: Alternative PCL Cut-Off Score

Table 4 shows the main results of the sensitivity analysis. We conducted sensitivity analysis using an alternative PCL cut-off score of $\geq$ 31. The prevalence of PTSD rose slightly

to 49.7%. However, the pattern of correlation remained the same. As predictors, refugee status, trauma exposure count, challenges in adapting to a new society, and language barriers were all statistically significant.

Predictor	OR	95% CI	p
Refugee status	7.88	2.00–31.03	0.003
Trauma exposure count	1.21	1.08–1.36	0.001
Difficulty adjusting to new culture	2.40	1.42–4.07	0.001
Difficulty with new language	1.71	1.03–2.85	0.039
Age	0.98	0.94–1.03	0.428
Canadian citizen	0.71	0.17–2.94	0.632

Table 4: Sensitivity Analysis: Logistic Regression Predicting PTSD Incidence (PCL $\geq$ 31) predictor

3.6. Stratified Analysis by Refugee Status

By refugee status, the prevalence of PTSD varied significantly. For instance, among refugees, 67.4% satisfied the criteria for PTSD, but just 10.9% of non-refugee newcomers did. Among these refugees, the following predictors exposure to trauma, trouble adjusting to a new culture, and language difficulty

were all significant to PTSD incidence. Table 5 shows these results. In these results, logistic regression models were unstable since there were only a few cases of PTSD among non-refugees. As a result, the estimates of non-refugees were classified as exploratory and are shown as full regression tables.

Predictor	OR	95% CI	p
Trauma exposure count	1.19	1.05–1.35	0.006
Difficulty adjusting to new culture	2.23	1.28–3.87	0.005
Difficulty with new language	1.99	1.16–3.42	0.013
Age	0.98	0.94–1.03	0.467

Table 5: Logistic Regression Predicting PTDS Incidence Among Refugees Only (PCL ≥ 33)

4. Discussion

This quantitative study explored the prevalence and predictors of probable PTSD among newcomers in Southeast Alberta. The study employed validated screening instruments and multivariate regression analyses. Three key findings emerged from the data analysis: (i) half of the study participants probably had PTSD, (ii) the data analysis shows that being a refugee and being exposed to trauma were strongly correlated with PTSD, (iii) the challenge of adapting to a new culture and the difficulty in learning a new language (post-immigration settlement stressors), were independently associated with PTSD after accounting for immigration and trauma exposure. The observed PTSD prevalence in the study substantially surpasses estimates reported for the Canadian population, where PTSD prevalence is approximately below 10% (Public Health Agency of Canada, 2025; Van Ameringen et al., 2008). In this study, the observed prevalence is consistent with evidence indicating PTSD burden among refugee populations. For instance, a meta-analysis study conducted by Steel et al. (2009) showed an estimated pooled PTSD prevalence of nearly 30% among refugees. A similar systematic review of Syrian refugees in 10 countries reported a prevalence of 43% for PTSD (Peconga & Høgh Thøgersen, 2020). Additionally, other reviews report similarly high prevalence, especially in community samples and when symptom-based screening instruments were used (Blackmore et al., 2020; Turrini et al., 2017). The difference between these estimated findings and the higher prevalence observed in the current study likely reflects the data collection setting. For instance, participants recruited in a community setting with high concentrations of refugees exposed to traumatic events may yield higher prevalence estimates than population-based sampling. Additionally, PTSD prevalence data derived from self-reported instruments, such as the PCL, may likely be higher compared to clinically administered diagnostic interviews in populations experiencing ongoing stressors (McDonald & Calhoun, 2010; Terhakopian et al., 2008) [22-27].

Refugee status remained a strong predictor of PTSD in adjusted models, consistent with extensive literature documenting the mental health consequences of forced displacement, armed conflict, persecution, and prolonged insecurity (Fazel et al., 2005; Steel et al., 2009). The robust correlation between trauma exposure frequency and PTSD endorses an adversity model, wherein recurrent exposure to traumatic incidents exacerbates psychological vulnerability (Mollica et al., 1999; Neuner et al., 2004). The existence of this anticipated dose-response relationship offers significant construct validity for the analytical model and bolsters the robustness of the results. This outcome reinforces the robustness of this study's findings.

One of the main strong contributions of this study is the demonstration that post-migration settlement stressors, including language challenges and cultural adaptation, were independently correlated with PTSD. This concurs with existing research indicating the role of post-migration challenges in shaping mental health outcomes among migrants and refugees (Li et al., 2016; Miller & Rasmussen, 2010). For instance, studies have demonstrated that language barriers restrict healthcare access, heighten social isolation, and exacerbate psychological distress (Guruge et al., 2015; Satinsky et al., 2019) [28-30].

Collectively, these findings reveal that PTSD among newcomers in rural Southern Alberta was not only influenced by past trauma but also by current social, cultural, and structural conditions. Thus, PTSD is sustained by daily settlement stressors rather than primary pre-migration experiences. Similar results were discovered through sensitivity analyses using alternative PCL cut-offs (≥31 vs. ≥33). This range has been validated by other studies in identifying probable PTSD in individuals (Blevins et al., 2015; Bovin et al., 2016). Further to this, the stratified analyses show that PTSD prevalence was more common in refugees than non-refugees. Among these refugees, trauma exposure and settlement stressors remained predictors of PTSD. This finding reinforces the need to integrate settlement policy in

mental health interventions [31,32].

4.1. Policy implications

The study findings have important implications for policy and practice in rural Southeast Alberta and Canada as a whole. The findings reveal that mental health interventions should not be limited to clinical settings but should be included within settlement systems. Addressing language barriers, cultural adaptation, and access to trauma-informed care may reduce PTSD burden and improve long-term integration outcomes. Studies highlighting systemic barriers to mental healthcare for refugees in high-income countries have drawn similar recommendations (Kirmayer et al., 2011; Satinsky et al., 2019) [32,33].

4.2. Strengths And Limitations

The main strengths of this study include the use of validated instruments, as well as sensitivity and stratified analyses. The strengths also lie in employing cumulative trauma and post-migration stressors in a single analytic framework. In terms of the limitations, the cross-sectional design relied on self-reported symptoms rather than clinical diagnoses. These limitations are consistent with the literature on mental health and should be considered when interpreting prevalence estimates (McDonald & Calhoun, 2010; Steel et al., 2009).

5. Conclusion

This cross-sectional study investigated the prevalence and predictors of probable PTSD among newcomers in a rural community in Southeast Alberta. These newcomers consisted of refugees and non-refugees residing in the town of Brooks. Findings from the analyzed data show a high prevalence of probable PTSD in newcomers. Among the newcomers, refugees were at a higher risk of PTSD when compared to non-refugees. Cumulative trauma exposure and post-migration settlement challenges, such as language barriers, influenced this risk. Thus, this phenomenon illustrates the importance of policy interventions. One policy choice is that policymakers should embrace the integration of mental healthcare with settlement services to support refugees and immigrants. Such a policy proposal can address language and cultural challenges. Additionally, in rural communities, such as Brooks, embracing trauma-informed care can improve mental health among refugees in Southeast Alberta and Canada as a whole.

Declarations

Ethical Approval and Consent to Participate

Ethical approval for the study was obtained from the Research Ethics Board at Medicine Hat College. All procedures were performed in accordance with the Canadian Tri-Council Policy on Research Ethics. Informed consent was obtained from all participants before participation.

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Disclosure of statement

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