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Post-traumatic stress disorder among immigrants living in Finland: Comorbidity and mental health service use

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ABSTRACT

The aim of this study was to compare differences in comorbidity between immigrants and Finnish-born controls, and to examine the treatment received by immigrants with PTSD. Our original data included all the immigrants living in Finland by the end of 2010 and matched controls. For this study, we selected individuals who had received a diagnosis of PTSD during 2010–2015 (immigrants: $n = 754$, Finnish-born controls: $n = 311$). We compared the frequency of different comorbid conditions between immigrants and natives. Multinomial logistic regression was used to predict categorized treatment intensity with the region of origin and length of residence among the immigrants. Psychiatric comorbidity was much more extensive among the Finnish-born controls than among immigrants. Immigrants from Africa and the Middle East more often received treatment of low intensity compared with immigrants from Western countries. The length of residence was associated with more frequent treatment. The important differences in comorbidity and background characteristics between immigrants and natives should be taken into account in planning treatment guidelines for PTSD. The disparities in treatment intensity across different immigrant groups indicate a need to improve the services for immigrants with PTSD.

1. Introduction

Immigrants, especially refugees, have an increased risk of developing post-traumatic stress disorder (PTSD) (Giacco et al., 2018). Many refugees have experienced trauma—such as war, torture, violence, and accidents—before and during their migration from their home countries. Long-term exposure and experiencing multiple traumas are particularly likely to trigger PTSD (Schauer et al., 2003; Siman-Tov et al., 2019). Post-migration difficulties—such as problems in acculturation, a lack of a social network, and communication problems—are additional risk factors for the development of PTSD (Bustamante et al., 2017).

The prevalence estimates of PTSD among refugees have varied greatly across studies, but PTSD is nevertheless consistently more common among refugees than among the general population (Giacco et al., 2018). A systematic review suggested that the point prevalence of PTSD is 9% among refugees who had resettled in Western countries

(Fazel et al., 2005), although prevalences as high as 30% have been reported (Steel et al., 2009). The studies which have investigated PTSD among refugees have used different methods, instruments, and populations (Fazel et al., 2005). Small sample sizes and self-report measures have been associated with higher prevalence rates (Steel et al., 2009). In the general population, the lifetime prevalence of PTSD varies from around 1 to 3%, although higher prevalence has been reported in some countries (Atwoli et al., 2015).

The comorbidity of other psychiatric disorders with PTSD is very high (Brady et al., 2000). In the US National Comorbidity Study, as many as 44% of women and 59% of men with PTSD met the criteria for three or more other psychiatric diagnoses (Kessler et al., 1995). The most common comorbid disorders include major depressive disorders, anxiety disorders (especially simple and social phobia, and panic disorder), and substance-use disorders (Brady et al., 2000; Kessler et al., 1995; McCauley et al., 2012; Rytwinski et al., 2013). Multiple processes may explain the comorbidity: one disorder may predispose a patient to

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another (e.g., a substance-use disorder might predispose a patient to trauma), comorbid disorders may be independent disorders sharing the same risk factors, or the apparent comorbidity might be partly explained by symptom overlap (Brady et al., 2000; Spinhoven et al., 2014).

Among refugees, typical comorbid conditions with PTSD include affective disorders, persistent pain disorder, anxiety disorders, and dissociative disorders (Belz et al., 2017; Fazel et al., 2005; Van Ommeren et al., 2001). A meta-analysis including 17 interview-based studies of PTSD among refugees suggested that 40% of refugees with PTSD also had depression (Fazel et al., 2005).

Refugees are known to face difficulties in accessing mental health care in their host country due to the unknown health care system, linguistic difficulties, cultural differences in the perception of illness, and a lack of trust (Giacco et al., 2018). There appears to be an unmet need for mental health services among refugees with PTSD (Lamkaddem et al., 2014; Slewa-Younan et al., 2015; Wagner et al., 2013; Wright et al., 2016). A Finnish study examined the relationship between trauma and help seeking among immigrants of Russian, Somalian, and Kurdish origin (Schubert et al., 2019). The study suggested that past traumatic events increased help seeking for mental health problems, but they were also associated with low trust in services.

No study has directly compared the differences in PTSD comorbidity between immigrants and native-born controls. Such a comparison is crucial in order to gain a better understanding of the manifestation of PTSD, and it would have important implications for treatment as well. Since it has been shown that immigrants in Finland, particularly those from refugee-generating countries, use psychiatric services with lower intensity than natives (Kiesepää et al., 2019), it is important to see whether there are differences in treatment intensity received by different immigrant groups with PTSD.

This study examined the differences in the manifestation of PTSD among immigrants and native-born controls, and the intensity of psychiatric treatment received by immigrants with PTSD. We were interested in (1) how immigrants and native-born controls with PTSD differ from each other in terms of psychiatric comorbidity and (2) whether the country of origin, length of residence in Finland, and psychiatric comorbidity are related to the intensity of treatment received by immigrants with PTSD.

2. Methods

“The Mental Health of Immigrants Living in Finland” study uses a register-based sample maintained by the Finnish Institute for Health and Welfare (THL). The study utilizes Finnish registers to study the prevalence of visits to mental health care services made by both immigrants and native Finns. The THL, the Finnish Central Population Register (FCPR), and Statistics Finland have given their permission for the use of confidential register data in this study, and the study has been approved by the Ethics Committee of the THL (589/2013, 798/2018).

2.1. Sample

Immigrants were identified from the FCPR by country of birth and mother tongue, as described in detail elsewhere (Lehti et al., 2017). The original sample includes all immigrants who were over 15 years old and residents in Finland on December 31st, 2010 ($n = 185\ 605$) and Finnish-born controls ($n = 185\ 605$). The sample does not include asylum seekers or recent migrants without a valid personal identity code, which is necessary for the data linkages. The controls were matched by sex and age so that they were born in the same year and month as the migrant and matched by the municipality of residence on December 31st, 2010. Both cases and controls were followed until death, emigration, or December 31st, 2015.

For the present study, we only selected individuals who had received a diagnosis of PTSD during the follow-up (2011–2015). This selection yielded a sample of 311 Finnish-born controls (29.2%) and 754

immigrants (70.8%).

2.2. The background characteristics of interest

The background characteristics of interest included age, sex, marital status, socioeconomic status, country and region of origin, and length of residence in Finland. Information on socioeconomic status was derived from Statistics Finland and information on the other variables was derived from the FCPR. *Marital status* was classified into two groups: (1) married or in a registered partnership and (2) any another status (single, divorced, separated, cohabiting without marriage, or a registered partnership). *Socioeconomic status* was based on the occupation (or lack thereof) in 2010 and, in this study, it was classified into five groups: (1) entrepreneurs and farmers, (2) upper white-collar workers (such as leaders or experts), (3) lower white-collar workers (such as office workers), (4) blue-collar workers (manual work), and (5) people not in employment (such as students, unemployed, and homemakers). The socioeconomic status was unknown for 17.9% of the immigrants and 6.8% of the Finnish-born controls, and marital status was unknown for 8.6% of the immigrants.

Region of origin was classified into five groups: (1) the European Union / European Free Trade Association (EU/EFTA), North America, and Australia, (2) Eastern Europe (including Russia and the former Soviet Union), (3) the Middle East and Northern Africa, (4) sub-Saharan Africa, and (5) Asia. The number of immigrants from other countries was so small that no separate category was formed for them and they were thus excluded in the analyses related to region of origin. *Length of residence in Finland* was classified into two groups: (1) less than five years and (2) five years or more.

2.3. Psychiatric diagnoses

The study includes psychiatric diagnoses that were given by physicians in psychiatric units in public specialized health care. In Finland the 10th revision of the International Statistical Classification of Diseases and Related Health Problems (ICD-10) is used for diagnostics, and the diagnoses of PTSD and other psychiatric disorders are based on the ICD-10 criteria. A diagnosis of PTSD can be given at the first visit to a specialized mental health care unit, although the diagnosis is also often given during treatment, which is why we decided to study the visits to psychiatric care units both before and after the diagnosis. In Finland, the diagnosis does not determine the maximum number of treatment visits. Outpatient services in the public sector are mostly free of charge.

Comorbid psychiatric disorders were defined as psychiatric disorders other than PTSD diagnosed during the follow-up. We studied the comorbidity of PTSD and the following psychiatric disorders: (1) alcohol-use disorders (F10), (2) other psychoactive substance-use disorders (F11–F19), (3) schizophrenia, schizotypal disorders, and other delusional disorders (F20–F29), (4) depressive episodes and recurrent depressive disorders (F32–F33), (5) manic episodes and bipolar disorders (F30–F31), (6) other mood disorders (F34–F39), (7) phobic disorders and other anxiety disorders, and obsessive-compulsive disorders (F40–F42), (8) dissociative and somatoform disorders (F44–F45), (9) eating disorders (F50), and (10) personality disorders (F60).

2.4. Psychiatric treatment

Due to notable differences in background characteristics and especially in comorbidity between immigrants and Finnish-born controls, we found these groups incomparable in terms of treatment intensity. Thus only immigrants were included in the analyses of psychiatric treatment. We studied their treatment patterns in specialized outpatient mental health care for a two-year period: a year before and a year after receiving the diagnosis of PTSD. The diagnosis had to be given during the follow-up (2011–2015) and since we had the information on visits to psychiatric services from 2007 to 2015, immigrants who had received a PTSD

diagnosis during 2015 were excluded since we did not have the information of their treatment for a full-year period after the diagnosis. The number of visits to outpatient mental health care units during these two years was categorized as follows: (1) *low intensity* (one to three visits), (2) *moderate intensity* (four to ten visits), and (3) *high intensity* (eleven visits or more). A description of the rationalization for this categorization can be found elsewhere (Kiesepää et al., 2019). To ensure the validity of the categorization, we also performed the analyses by using treatment intensity as a continuous variable and by using larger categories (one to six visits, seven to twenty visits, and twenty-one or more visits). The results of these analyses are available in the supplementary material (supplementary tables 1 and 2). Since the results remained very similar, we decided to use the original categorization.

2.5. Statistical analysis

Chi-square tests of independence were calculated to compare differences in sex, marital status, socioeconomic status, and comorbid psychiatric diagnoses between immigrants and Finnish-born controls. An independent samples *t*-test was conducted to compare the difference in mean age between immigrants and controls. Chi-square tests were also used to compare the differences within immigrants between treatment intensity categories in the background characteristics of interest.

Multinomial logistic regression was used to predict the effect of the region of origin, length of residence in Finland, comorbid depression, comorbid anxiety, and any other comorbid psychiatric disorders on the categorized treatment intensity variable. *High intensity* was the reference category for the outcome variable.

3. Results

There were more immigrants with PTSD ($n = 754$, 0.4% of all the immigrants in the original sample) than there were natives with PTSD ($n = 311$, 0.2% of all the natives in the original sample). Sociodemographic characteristics of the sample are shown in Table 1. The immigrants were older ($M = 37.2$, $SD = 11.9$) than Finnish-born controls ($M = 32.6$, $SD = 11.3$), [$t(604.27) = 5.9974$, $P < 0.001$], more often male than Finnish-born controls (53.3 % vs. 21.2 %) [$\chi^2(1) = 92.067$, $P < 0.001$], and more often married than the Finnish-born controls (24.8 % vs. 55.2 %) [$\chi^2(1) = 79.768$, $P < 0.001$]. There were statistically significant differences in socioeconomic status between the two groups [$\chi^2(4) = 92.952$, $P < 0.001$], but the interpretation is difficult because the socioeconomic status of many of the immigrants (17.9%) was unknown. The immigrants were more often not in employment (55.0% vs. 38.9%) and the Finnish-born controls were more likely to have an occupation in all the other categories except for entrepreneurs and farmers.

There were notable differences in comorbidity between the

Table 1
Sociodemographic characteristics of subjects who were diagnosed with PTSD during the follow-up

	Controls	Immigrants	p
Total (%)	311 (29.2)	754 (70.8)	
Age (mean (standard deviation))	32.6 (11.3)	37.2 (11.9)	<0.001
Sex (male) (%)	66 (21.1)	402 (53.3)	<0.001
Marital status (married/registered partnership) (%)	77 (24.8)	380 (55.2)	<0.001
Socioeconomic status (%)			<0.001
(1) Entrepreneurs and Farmers	10 (3.2)	32 (4.2)	
(2) Upper white collar workers	25 (8.0)	17 (2.3)	
(3) Lower white collar workers	81 (26.0)	49 (6.5)	
(4) Blue collar workers	53 (17.0)	106 (14.1)	
(5) Other	121 (38.9)	415 (55.0)	
Unknown	21 (6.8)	135 (17.9)	

Note: Bold values indicate significance level of $p < 0.05$

immigrants and the Finnish-born controls. In general, psychiatric comorbidity was much more extensive among the Finnish-born controls (see Table 2). In addition to PTSD, the Finnish-born controls were more likely to have alcohol disorders (10.3% vs. 2.9%) [$\chi^2(1) = 24.858$, $P < 0.001$], other psychoactive substance-use disorders (9.6% vs. 2.4%) [$\chi^2(1) = 26.957$, $P < 0.001$], mania or bipolar disorders (11.9% vs. 3.7%) [$\chi^2(1) = 25.731$, $P < 0.001$], anxiety disorders (44.1% vs. 25.1%) [$\chi^2(1) = 37.363$, $P < 0.001$], eating disorders (3.9% vs. 0.7%) [$\chi^2(1) = 12.351$, $P < 0.001$], and personality disorders (19% vs. 6.2%) [$\chi^2(1) = 39.86$, $P < 0.001$]. Only depressive disorders were slightly more common among the immigrants (67.4% vs. 61.7%) [$\chi^2(1) = 3.1066$, $P = 0.078$], but the difference was not statistically significant. As much as 32.2% of the Finnish-born controls had three or more psychiatric diagnoses in addition to PTSD, while the respective figure was only 12.3% for the immigrants [$\chi^2(3) = 60.458$, $P < 0.001$].

Almost half of the immigrants with PTSD were from the Middle East and Northern Africa ($n = 351$, 46.6%). A quarter ($n = 183$, 24.3%) were from Eastern Europe, Russia, or the former Soviet Union, 11.7% ($n = 88$) were from Western countries, 8.9% ($n = 67$) were from sub-Saharan Africa, and 7.0% ($n = 53$) were from Asia. The most common countries of origin included Afghanistan ($n = 75$, 9.9%), Iraq ($n = 156$, 20.7%), Iran ($n = 54$, 7.2%), Yugoslavia ($n = 92$, 12.2%), and the former Soviet Union ($n = 56$, 7.4%).

The distribution of the treatment intensity by the region of origin and length of residence in Finland is shown in Table 3. Only the immigrants who had received the diagnosis of PTSD during 2011–2014 were included ($n = 636$). There were significant differences in treatment intensity within regions of origin: the immigrants from Western countries most often received treatment of high intensity (61.1%) while the immigrants from sub-Saharan Africa, and the Middle East and Northern Africa received treatment of high intensity least often (36.5% and 39.4% respectively) [$\chi^2(8) = 17.853$, $P = 0.022$]. The length of residence in Finland was associated with higher treatment intensity. Of the immigrants who had PTSD and had lived in Finland less than five years, 36.6% received treatment of high intensity while of the immigrants who had lived in Finland longer than five years, 52.7% received treatment of high intensity [$\chi^2(2) = 14.632$, $P = 0.001$].

The results of the regression models are presented in Table 4. In the first model we predicted treatment intensity with the region of origin, length of residence, and comorbid psychiatric disorders and adjusted it for age and sex (*high intensity* was the reference category for the outcome

Table 2
Comorbid disorders among immigrants and controls with PTSD

Comorbid disorder (diagnosed 2011-2015)	Subjects with PTSD (diagnosed 2011-2015)		p
	Immigrants (%)	Controls (%)	
Alcohol disorders (F10)	22 (2.9)	32 (10.3)	<0.001
Other psychoactive substance use disorders (F11-19)	18 (2.4)	30 (9.6)	<0.001
Schizophrenia, schizotypal and delusional disorders (F20-29)	65 (8.6)	39 (12.5)	0.05
Major depressive disorder (F32-33)	508 (67.4)	192 (61.7)	0.078
Mania / Bipolar disorder (F30-31)	28 (3.7)	37 (11.9)	<0.001
Other mood disorders (F34-39)	55 (7.3)	33 (10.6)	0.074
Phobic and other anxiety disorders and OCD (F40-42)	189 (25.1)	137 (44.1)	<0.001
Dissociative and somatoform disorders (F44-45)	59 (7.8)	25 (8.0)	0.906
Eating disorders (F50)	5 (0.7)	12 (3.9)	<0.001
Personality disorders (F60)	47 (6.2)	59 (19.0)	<0.001
Number of other psychiatric diagnoses			<0.001
No other diagnosis	167 (22.1)	60 (19.2)	
1 other psychiatric diagnosis	310 (41.1)	86 (27.7)	
2 other psychiatric diagnoses	184 (24.4)	65 (20.9)	
3 or more other psychiatric diagnoses	93 (12.3)	100 (32.2)	

Note: Bold values indicate significance level of $p < 0.05$

Table 3
Region of origin and length of residence in Finland within treatment intensity categories

	Treatment intensity (n, %)			p
	Low	Moderate	High	
Region of origin				0.022
Eastern Europe, Russia and former Soviet Union	29 (20.4)	44 (31.0)	69 (48.6)	
Middle East and Northern Africa	73 (26.4)	95 (34.3)	109 (39.4)	
Sub-Saharan Africa	13 (25.0)	20 (38.5)	19 (36.5)	
Asia	4 (10.3)	13 (33.3)	22 (56.4)	
EU/EFTA, North America, Australia	13 (18.1)	15 (20.8)	44 (61.1)	
Length of residence in Finland				0.001
Less than 5 years	64 (26.3)	90 (37.0)	89 (36.6)	
More than 5 years	63 (19.2)	92 (28.0)	173 (52.7)	

Note: Bold values indicate significance level of $p < 0.05$

Only immigrants who received the diagnosis of PTSD during 2011-2014 are included.

Table 4
Region of origin, length of residence in Finland and comorbid psychiatric disorders as predictors for categorized treatment intensity. "High intensity" was the reference category for the outcome variable.

	Low intensity		Moderate intensity	
	OR (95 % CI)	p	OR (95 % CI)	p
Model 1				
Region of origin (ref. EU/EFTA, North America, Australia)				
Eastern Europe	1.68 (0.68-4.17)	0.262	2.25 (1.03-4.91)	0.042
Middle East and Northern Africa	2.19 (0.94-5.08)	0.068	2.51 (1.20-5.22)	0.014
Sub Saharan Africa	1.71 (0.57-5.16)	0.343	2.56 (0.99-6.57)	0.051
Asia	0.59 (0.15-2.34)	0.452	1.73 (0.65-4.64)	0.275
Length of residence < 5 years (ref. > 5 years)	1.83 (1.11-3.02)	0.017	1.84 (1.20-2.82)	0.005
Comorbid depression	0.25 (0.15-0.41)	<0.001	0.78 (0.48-1.25)	0.3
Comorbid anxiety	0.73 (0.41-1.29)	0.274	0.57 (0.35-0.91)	0.018
Any other comorbid disorder	0.21 (0.11-0.37)	<0.001	0.60 (0.40-0.92)	0.019
Male (ref. Female)	1.19 (0.72-1.96)	0.491	0.96 (0.63-1.45)	0.826
Age	1.02 (0.996-1.04)	0.113	1.001 (0.98-1.02)	0.907
Model 2				
Region of origin (ref. EU/EFTA, North America, Australia)				
Eastern Europe	1.42 (0.67-3.03)	0.361	1.87 (0.93-3.76)	0.078
Middle East and Northern Africa	2.27 (1.14-4.50)	0.019	2.56 (1.34-4.88)	0.004
Sub Saharan Africa	2.32 (0.91-5.92)	0.079	3.09 (1.31-7.29)	0.01
Asia	0.62 (0.18-2.11)	0.44	1.73 (0.70-4.27)	0.232

Bold values indicate significance level of $p < 0.05$. Only immigrants who received the diagnosis during 2011-2014 are included.

variable). The region of origin was only a significant predictor for the immigrants from the Middle East and Northern Africa, who were more likely to receive moderate-intensity treatment than high-intensity treatment compared with those from Western countries ($aOR = 2.51$,

95% CI = 1.20–5.22, $P = 0.014$). Longer length of residence in Finland predicted higher treatment intensity. The immigrants who had lived in Finland for less than five years were more likely to receive both low-intensity treatment ($aOR = 1.83$, 95% CI = 1.11–3.02, $P = 0.017$) and moderate-intensity treatment ($aOR = 1.84$, 95% CI = 1.20–2.82, $P = 0.005$) compared with the immigrants who had lived in Finland for over five years. Comorbid psychiatric disorders predicted higher treatment intensity.

The second model shows the unadjusted odds ratios for the region of origin as a predictor for treatment intensity. In the unadjusted model, the immigrants from the Middle East and Northern Africa were more likely to receive both low- and moderate-intensity treatment ($OR = 2.27$, 95% CI = 1.14–4.50, $P = 0.010$ and $OR = 2.56$, 95% CI = 1.34–4.88, $P = 0.004$ respectively) and the immigrants from sub-Saharan Africa were more likely to receive treatment of moderate intensity ($OR = 3.09$, 95% CI = 1.31–7.29, $P = 0.01$) compared with the immigrants from Western countries.

4. Discussion

Immigrants and natives suffering from PTSD differed from each other in many important characteristics. The immigrants were more often older and male, and more often married. There were also important differences in comorbidities. Compared to the immigrants, the Finnish-born controls were more likely to have almost any other comorbid psychiatric disorder. Immigrants from Western countries most often received treatment of high intensity and immigrants from Africa and the Middle East most often received treatment of low and moderate intensity. Longer length of residence in Finland was associated with more intensive treatment. Comorbid depression, comorbid anxiety, and other comorbid conditions also increased the likelihood for receiving treatment of higher intensity.

As is already known, the prevalence of PTSD is much higher among immigrants than among natives (Markkula et al., 2017). This most likely reflects the higher proportion of trauma exposure among immigrants, although the difference could also be partly explained by underdiagnosis of PTSD among natives.

4.1. Differences in background characteristics

Notably higher proportion of the immigrants was men (53%) as compared to the Finnish-born (21%), and immigrants were more often older. The sex differences might reflect the nature of traumatic experiences: in general, men are more likely to experience war, terrorism, and other than sexual assaults than women, and women are more likely to experience sexual assaults than men (Tolin & Foa, 2006). Refugees have often been exposed to war and violence in their countries of origin whereas no one is likely to have experienced war or terrorism in Finland in the age range we studied. Another explanation could be that PTSD is underdiagnosed among Finnish-born men.

4.2. Comorbidity

The comorbidity of PTSD and other conditions is known to be high (Brady et al., 2000) and our results support this. However, we found important differences in comorbidity among immigrants and natives. Finnish-born controls were more likely to have an additional diagnosis of almost any other psychiatric disorder compared to the immigrants. The most common comorbid conditions among both immigrants and Finnish-born controls were depression and anxiety disorders, both of which have many overlapping diagnostic criteria with PTSD and both of which have been associated with PTSD in many studies (Brady et al., 2000; Galatzer-Levy et al., 2013; Spinhoven et al., 2014).

The comorbidity differences between the immigrants and the Finnish-born were most pronounced for alcohol- and substance-use disorders, mania and bipolar disorders, anxiety disorders, eating

disorders, and personality disorders. The higher comorbidity among the Finnish-born with PTSD could reflect higher general vulnerability for mental illnesses. Refugees face typically such extreme conditions that even those who are not particularly vulnerable for mental illnesses could be at risk for developing PTSD. In a relatively safe society such as in Finland, developing PTSD symptoms could be more likely to reflect general vulnerability.

There is some evidence that trauma can predispose individuals to alcohol- and substance-use problems due to self-medication (Brady et al., 2000) and early trauma has also been associated with development bipolar disorders (Quidé et al., 2020) and borderline personality disorders (Kulkarni, 2017). However, the causal pathways can also go the other way around: high-risk behavior associated with a substance use disorder or a manic episode might predispose individual to trauma (Brady et al., 2000; Gielen et al., 2012; Otto et al., 2004). In a Swedish study it has been shown that people with severe mental illness or substance use disorder are more vulnerable to experiencing trauma (Sariaslan et al., 2020). Possibly similar mechanisms could also apply to Finnish society: individuals who already have mental issues could be more likely to experience trauma and thus develop PTSD.

Another explanation might be that if a patient is extremely traumatized, which is more likely for a refugee rather than for a native, it can be difficult to diagnose any other possible disorders and potential comorbid disorders might go undiagnosed.

4.3. Psychiatric treatment

In Finland public health care is accessible to all and mostly free of charge. Despite this immigrants from Africa and the Middle East with PTSD received less intensive treatment as compared to immigrants of Western origin with PTSD. Other Finnish studies have shown that even the most severe traumas, such as torture, are relatively common among these groups (Castaneda et al., 2012; Skogberg et al., 2019), indicating potentially more severe PTSD symptoms as well. Therefore, this finding of them receiving lower-intensity mental health care is both paradoxical and alarming, and is likely to reflect broader cultural and structural barriers refugees of non-Western origin might face when attempting to access Western mental health services.

There are many potential reasons for the observed disparities. An Australian study of mainly Middle Eastern refugees found stigma associated with mental illness to be a barrier for seeking help for PTSD among refugee men (Byrow et al., 2019). Trauma and related psychological events are also understood differently across different cultures (Piwowarczyk et al., 2014; Savic et al., 2016), which might affect treatment-seeking. In an Australian study it was found that recently arrived Iraqi refugees had a low problem recognition regarding PTSD and partly contradictory beliefs about the best treatment for PTSD symptomology (Slewa-Younan et al., 2015). Other potential barriers are more structural in nature and relate more closely on the quality and type of services available. Lack of knowledge of the services and poor accessibility of the services have been reported as barriers among refugees of Middle Eastern and African origin (Valibhoy et al., 2017). Cultural understanding and respect from the mental health professionals have also been closely associated with treatment satisfaction among refugees from these areas (Lindberg et al., 2019; Valibhoy et al., 2017). In Finland, it has been found that past traumatic events predict lower trust in services among refugees of Kurdish, Russian and Somali origin (Schubert et al., 2019), which might affect the continuity of treatment.

A partial explanation for these short treatments might be that the treatment of some patients continues somewhere else, for example, with a private psychotherapist or at one of the two rehabilitation centers for torture survivors in Finland. In practice, however, the number of these patients is quite small (Härkäpää et al., 2012). It is therefore likely that there is an unmet need for mental health care among these immigrant groups.

Immigrants who have lived in Finland less than five years were more

likely to receive treatment of low intensity than those who had lived in Finland longer. Studies from Sweden and Norway have shown that length of residence in the host country seems to be associated with higher use of services (Manhica et al., 2017; Straiton et al., 2014). Our results support these findings.

4.4. Strengths and limitations

The strengths of our study include our nationwide data, which covers the entire immigrant population (apart from asylum seekers and undocumented migrants), and thereby, there is almost no selection bias. The hospital discharge register, which was used to attain the information on mental health care use and psychiatric diagnoses, is highly reliable and covers all public specialized mental health care use (Sund, 2012).

There are limitations associated with this study. The comorbidity of other conditions was measured as other conditions diagnosed during the follow-up and they did not necessarily occur at the same time, and the reporting of secondary diagnoses may have differed between population groups. We did not have information on the type of trauma or the perceived need for mental health services, which limits us from making further conclusions about the mechanisms behind the observed patterns. In addition, it is possible that some individuals might have moved away from Finland after receiving the diagnosis and were thus unable to receive further treatment for the condition in Finland. However, the number of these individuals is likely to be small.

4.5. Conclusion

There are important differences in the manifestation of PTSD between immigrants and Finnish natives. Compared to immigrants, Finnish-born controls with PTSD were more often younger and female, and were also more likely to suffer from other comorbid psychiatric disorders. These results may suggest that people with severe mental illness or substance use disorder are vulnerable to experiencing trauma, which calls for preventive actions. These differences should be taken into account in planning treatment guidelines for PTSD.

Immigrants with PTSD from sub-Saharan Africa, Northern Africa, and the Middle East received the least intensive treatment even though it is likely that these groups have experienced the most severe trauma. This discrepancy between the prevalence and treatment of PTSD across different immigrant groups indicates a need to improve the treatment and services for immigrants with PTSD. More research is needed to examine the reasons behind the probable underuse of services among immigrants from these regions.

Author statement

Valentina Kiesepää: Conceptualization, Formal Analysis, Writing-Original draft preparation. **Markus Jokela:** Conceptualization, Writing - Review & Editing **Minna Holm:** Conceptualization, Writing - Review & Editing **Jaana Suvisaari:** Conceptualization, Writing - Review & Editing **Mika Gissler:** Writing - Review & Editing **Venla Lehti:** Conceptualization, Writing - Review & Editing

Declaration of competing interest

On behalf of all authors, the corresponding author states that there is no conflict of interest.

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Supplementary materials

Supplementary material associated with this article can be found, in the online version, at [doi:10.1016/j.psychres.2021.113940](https://doi.org/10.1016/j.psychres.2021.113940).

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