

## REVIEW ARTICLE

# Stress, trauma, and posttraumatic stress disorder in migrants: a comprehensive review

Lineth H.U. Bustamante, Raphael O. Cerqueira, Emilie Leclerc, Elisa Brietzke

*Departamento de Psiquiatria, Universidade Federal de São Paulo (UNIFESP), São Paulo, SP, Brazil.*

**Objective:** There is growing evidence supporting the association between migration and posttraumatic stress disorder (PTSD). Considering the growing population of migrants and the particularities of providing culturally sensitive mental health care for these persons, clinicians should be kept up to date with the latest information regarding this topic. The objective of this study was to critically review the literature regarding migration, trauma and PTSD, and mental health services.

**Methods:** The PubMed, SciELO, LILACS, and ISI Web of Science databases were searched for articles published in Portuguese, English, Spanish, or French, and indexed from inception to 2017. The following keywords were used: migration, mental health, mental health services, stress, posttraumatic stress disorder, and trauma.

**Results:** Migration is associated with specific stressors, mainly related to the migratory experience and to the necessary process of acculturation occurring in adaptation to the host country. These major stressors have potential consequences in many areas, including mental health. The prevalence of PTSD among migrants is very high (47%), especially among refugees, who experience it at nearly twice the rate of migrant workers.

**Conclusions:** Mental health professionals must be trained to recognize and provide appropriate care for posttraumatic and/or stress-related disorders among migrants.

**Keywords:** PTSD; migration; stress; trauma; mental health services

## Introduction

Migrants are individuals who enter a foreign country to live or work. From the perspective of the host country, immigrants are those individuals who have come from abroad. An estimated 244 million people worldwide have migrated out of their countries of origin, fleeing war or poverty or pursuing the dream of a better life.<sup>1</sup> According to Brazilian Federal Police data, there are 117,745 foreigners living in the country; the majority are natives of Bolivia, Colombia, Argentina, China, Portugal, and Paraguay.<sup>2</sup> Searching for employment, reuniting with family members, or seeking refuge for humanitarian reasons are the main motivations of migrants to Brazil. Mental health professionals, including psychologists, physicians, and nurses, will come into contact with adult and child migrants in a variety of settings, including schools, community centers, mental health facilities, and hospitals, and will need to know how to approach this population.

Migrants are often subjected to specific risk factors for mental health problems, mainly related to exposure of stressful and traumatizing experiences, including racial discrimination, urban violence, abuse by law enforcement officers, forced removal or separation from their families,

detention or reclusion, and/or deportation. Stress and trauma have been robustly associated with risks for mental disorders, including but not limited to posttraumatic stress disorder (PTSD), major depressive disorder, psychosis, and suicide.<sup>3-7</sup>

Stress is currently conceptually understood as a complex, multidimensional process by which some environmental factor (the stressor) triggers a physical and psychological response to which the individual must adapt. Adaptation is understood as a dynamic process by which the individual's thoughts, feelings, behavior, and biophysiological mechanisms continually change to fit a changing environment.<sup>8</sup> When the adaptation resources of the organism are overwhelmed, a mental disorder can prevail, with specific symptoms and associated behaviors, potentially including severe high-risk behaviors such as suicide.<sup>9</sup> As it requires constant adaptation to a new environment, the migration process is generally assumed to be a major chronic environmental stressor.

Nevertheless, the impact of migration on mental health is still a relatively unexplored issue in Brazil. It is critical that the impact of stress and trauma on vulnerability to mental health problems, especially PTSD, be known in order to develop appropriate interventions for prevention, recognition, and provision of early, culturally appropriate care for migrant populations. The objective of this study was to critically review the literature on the link between migration and stress, emphasizing the stress-related disorder PTSD, and to discuss its implications for Brazilian mental health services.

Correspondence: Dr. Elisa Brietzke, Rua Borges Lagoa, 570, 10º andar, Vila Clementino, CEP 04038-000, São Paulo, SP, Brazil.  
E-mail: elisabrietzke@hotmail.com  
Submitted Mar 31 2017, accepted Jun 13 2017.

## Methods

The PubMed, SciELO, LILACS, and ISI Web of Science databases were searched for articles published in Portuguese, English, Spanish, or French, and indexed from inception to 2017. The following keywords were used: migration, mental health, mental health services, stress, posttraumatic stress disorder, and trauma. We included original studies, reviews, and meta-analyses. Furthermore, the reference lists of selected articles were handsearched for additional publications of interest.

## Results

### *Stress and migration*

Several authors agree that migration is associated with specific stressors, mainly related to the migratory experience and the necessary process of acculturation occurring in adaptation to the host country; these have potential consequences in various areas, including mental health.<sup>10</sup> Many authors state that the migrant population is more vulnerable to health issues, especially psychological disorders, along with a higher level of anxiety or greater pessimism about the future, often caused and/or compounded by the loss of one's social support network and isolation due to lack of knowledge.<sup>11</sup>

One of the characteristics of migration-related stress is its chronicity. Some of the multiple stressors involved include feelings stemming from "not belonging to a single place," weak social conditions (e.g., lack of documentation, exploitation at work, poor housing conditions), linguistic and cultural changes, loneliness, failure of one's migration project, and the everyday struggle to survive.<sup>12-15</sup> From a psychodynamic point of view, migration can be conceived as a process similar to mourning, in which the individual moves away from family and loved ones; from his language, culture, country, social status, and contact with the groups to which he belongs; and into possible insecurity. According to the Achotegui,<sup>5</sup> the migration process involves three types of mourning: simple mourning, which takes place and is worked through in good conditions; complicated mourning, which involves serious difficulties in the working through of the migratory experience; and extreme mourning, which occurs in a problematic way and cannot be processed, overwhelming the adaptive capacities of the subject and leading to the so-called "immigrant syndrome with chronic or multiple stress" or "Ulysses syndrome." Achotegui named the syndrome after the myth of Ulysses and the odyssey of his return to Ithaca after the end of the Trojan War. Ulysses syndrome was defined as a stress-related clinical picture which includes four sets of manifestations: 1) in the depressive set: sadness, crying, guilt (paranoid type) and ideas of death (although infrequent); 2) in the anxious set: tension and nervousness, excessive and recurrent worries, irritability, and insomnia; 3) in the somatization set: headache, fatigue, and musculoskeletal, abdominal, and thoracic somatizations; and 4) in the cognitive set: memory deficit, attention deficit, and physical and temporal disorientation.

### *Stress and acculturation*

Acculturation is defined as a multidimensional process involving changes in many aspects of migrants' lives, including language, cultural and ethnic identity, attitudes and values, customs and social relations, gender roles, eating patterns, artistic expressions, and communication.<sup>16</sup> Acculturation can occur in stages, with migrants learning the new language first, followed by behavioral changes and participation in culture. From a cultural standpoint, while some settings (such as workplaces or schools) are associated predominantly with the host country, others (such as the home or neighborhood) may be associated predominantly with the culture of the country of origin. From this perspective, acculturation implies coexistence of both cultures, providing access to different types of resources, including those necessary for the promotion and restoration of mental health that would be expected to be linked to better mental health outcomes.<sup>17</sup>

Psychological acculturation refers to the dynamic process that begins when immigrants enter their new country and begin to adapt to its culture. Behavioral acculturation refers to the degree to which immigrants participate in their culture of origin and/or in the new culture.<sup>16</sup> In addition to adopting new habits, adult migrants can continue to participate in their culture of origin and establish friendships with fellow migrants from their home country, with whom they can share interests and values, consume ethnic food, and read printed material or electronic media in their native language.

According to Berry et al.,<sup>18</sup> the acculturation model includes four dimensions: integration, assimilation, separation, and marginalization.

- 1) Integration: the individual maintains aspects of their culture of origin, but also acquires traces of new current culture. This strategy can only be pursued in explicitly multicultural societies, based on values of acceptance of cultural diversity and with a low level of prejudice, that is, minimal levels of racism, ethnocentrism, and discrimination.
- 2) Assimilation: the individual does not wish to maintain their cultural identity of origin, and fully acquires the traits of the new culture. Value is ascribed to one's relationship with the new reality.
- 3) Separation: the individual places value only on aspects of their original culture, refusing integration into the new country.
- 4) Marginalization: the individual does not maintain traces of his original culture, nor does he identify with the values of the new culture; he stays on the sidelines. This mode may be characterized by a high level of anxiety, a sense of alienation, and a loss of contact with the two groups. Berry justifies that formal education is a personal resource and a protective factor in itself against problems of adaptation, as it helps in problem-solving and decreases stress. Occupational status and support networks also promote good adaptation. On the other hand, great cultural distances between the original and new culture imply the need for extensive cultural relearning, which can cause uninterrupted conflict and lead to adaptive difficulties.

Problems caused by acculturation include changes in gender roles, intergenerational conflicts, family conflict and communication difficulties, reversal of roles in the family, negotiation of identity and loyalty to the culture of origin and to the new culture, solitude, and isolation. Conflicts between generations are common in migrant families, reflecting a gap between the acculturation of parents and children.<sup>19</sup> Migrant children tend to adapt their behavior to the host culture rapidly. As immigrants, parents and children can live in worlds with different cultural contexts, which can be a source of parent-child arguments and conflicts about friendships, dating, marriage, gender roles, and career choices.<sup>19</sup> Because immigrant parents are immersed mainly in one cultural context and their children in another, parents often know little of their children's life away from home. For children of immigrants, it may be difficult to live with the expectations and demands of one culture at home and another at school. Children may not turn to their parents with problems and worries, believing that their parents do not know the host culture and its institutions well enough to provide good advice or help. In some cases, second-generation immigrant children and adolescents may undergo role reversal and translate their parents from their native language into the language of the new country or help parents and grandparents navigate the culture of the new country. Older adult migrants are often those most vulnerable to mental health problems, with the exception of victims of war and torture.

Acculturative conflicts are often the reason that brings immigrant families to psychological or psychiatric treatment. Even immigrants who have lived in a new country for a long time and seem to have adopted its lifestyle can continue to maintain a strong identification with their culture of origin. The structures of psychological and psychiatric care services should include programs designed to help immigrants adapt to the new context, value the need to learn the ways of the new culture, and maintain a connection with their old country and culture.

#### *Traumatic events in migrants*

The challenge in offering access to appropriate mental health services to migrants arises not only from cultural and linguistic barriers, but also from the impact of their exposure to traumatic events and stressors.<sup>20</sup> Traumatic factors are usually associated with the experience of migration, but the literature indicates that they could occur in pre-migratory stages, during the migratory process, or even in the post-migratory period.

The impact of traumatic events on mental health seems to be influenced by their frequency, intensity, and duration. A meta-analysis conducted by Bogic et al.<sup>21</sup> found that, regarding war-related factors, a higher number of traumatic experiences was the factor most robustly associated with the presence of mental disorders, including PTSD.<sup>22,23</sup> In the same line, Nygaard et al.<sup>24</sup> described a 40.9% prevalence of psychotic experiences migrants with refugee status and known PTSD; the most common experiences were auditory hallucinations (66.2%) and persecutory delusions (50%), which were more prevalent

in individuals exposed to torture and imprisonment. Different influences, such as childhood abuse and traumatic events, interact in complex ways to determine risk of psychotic disorder.<sup>25</sup> Migration is linked to a more severe psychosis, with a higher risk of "need for care," and refugees are at higher risk of non-affective psychosis.<sup>26</sup> Some authors state that the actual data suggest that the higher risk of schizophrenia in migrants is found in the least successful and most discriminated groups.<sup>27</sup> This theory also encompasses that, to a certain degree, it is the reason why childhood trauma is also a risk factor. Other authors argue that, in studies on discrimination, the strongest effect was seen when there was discrimination including physical assault. This supports that exposure to hostility, threat, and violence are a cause of high psychosis risk, because they trigger more paranoia and delusions.<sup>28</sup>

Interestingly, the meta-analysis conducted by Bogic et al. also indicated that post-migration socioeconomic level had no impact on PTSD risk, unlike the risk for major depression, in which socioeconomic disadvantage was a defined risk factor. Nevertheless, most studies indicate an independent effect of trauma severity (especially war trauma) on current mental health status, even after controlling for post-migration factors.<sup>21</sup>

#### *Posttraumatic stress disorder (PTSD) and migration*

PTSD is a mental disorder with a severe and disabling clinical course, and it represents a considerable burden not only to patients and their families, but also for society and the health system. Exposure to traumatic events is a required factor for the development of the disorder; more precisely, PTSD is the only psychiatric disorder which requires occurrence of an external traumatic event prior to symptomatology for its diagnosis.<sup>29</sup> Specific clinical manifestations, such as involuntary re-experiencing, hyperarousal, avoidance, and negative thoughts/feelings, occur for at least 4 weeks after the trauma.<sup>29,30</sup> There are several well-known risk factors for PTSD onset, including factors related to trauma itself (severity, frequency), to the subject (genetics, physiological reactions, neuroanatomical abnormalities, resilience), and to peri- and posttraumatic components (socioeconomic level, social network, post-trauma difficulties).<sup>31,32</sup>

A meta-analysis conducted by Lindert et al.<sup>33</sup> revealed that, among 20 pooled studies published during 1990 and 2007 and focusing only on PTSD, the overall prevalence was 47% (95% confidence interval [95%CI] 31-63). The prevalence among refugees was almost twice as high as in labor migrants, putatively due to exposure to more risk factors, such as violence, war, and political persecution which are often stimuli for migration, as reported by Rasmussen et al.<sup>34</sup> As mentioned, migrants often experience a set of traumatic experiences in their country of origin, during migration, and/or during the resettlement process in the new country; hence, it is not surprising that the prevalence of mental health problems, including PTSD, is high in this population.<sup>35</sup> Nevertheless, this extremely high prevalence in migrants highlights the importance of careful attention to mental health in these

populations, especially considering that the prevalence for PTSD among adults in the general population at any one time is up to 3%.<sup>30</sup> Interestingly, the risk of PTSD in migrant populations decreases over generations, and reaches similar proportion at the third generation.<sup>36</sup>

The risk factors for PTSD and the distribution of stressful and traumatic events differ considerably among countries that receive and send migrants, creating a complex relationship.<sup>37</sup> Countries that receive migrants might pose heterogeneous obstacles, such as different culture/acclimation, weak network integration, difficulties in daily life, and poor access to the health system, while countries that send migrants might include backgrounds of political instability, low socioeconomic status, violence, and natural disasters. Several risk factors for PTSD have been reported in the literature, such as multiple traumatic events, being a victim of violence (e.g., torture, rape/sexual assault, armed conflicts), and economic hardship, but also factors involving post-migration difficulties, such as poor social network (e.g., loneliness and boredom, weak social integration), poor access to counseling services, socioeconomic/political instability (e.g., not having legal immigrant status, unemployment), detention, communication difficulties, acculturative stress associated with post-migration experiences, and others.<sup>38-46</sup>

Communication skills are a topic that allows different understandings to be drawn from the same evidence. Frequently, these skills are reported as a concern by migrants, since better language performance allows access to better work, educational opportunities, and appropriate medical care.<sup>47</sup> However, Chu et al.<sup>39</sup> proposed an interesting view on this subject: better skills on the language from the receiving country were predictive of worse PTSD outcome, which could be related to higher expectations for coping with migration when compared to those with poor fluency.<sup>39</sup> A similar finding was reported by Porter & Haslam.<sup>48</sup> In this study, refugees with higher socioeconomic status prior to migration presented worse mental health outcomes due to a sharper drop in their status.<sup>48</sup> Given all these risk factors and considering that they are irregularly distributed all over the world and over the years, it is important to consider each population in its historical context, and their personal experiences in both their previous and their current homes.

#### *Limitations of the current data*

Given these particularities, there are some limitations regarding research not only on migrants' PTSD outcomes, but also on mental health from a much broader perspective. First, the interviews and evaluations in the included studies were frequently conducted in the language of the host country, which might lead to misinterpretations and jeopardize the sensitivity of the study. Language and cultural barriers can be overcome by using instruments for assessment in the migrant's language, administered by someone from the same cultural background, as Norris & Aroian<sup>49</sup> have done; this can provide more comfort to the subject. After this barrier is overcome, as stated above, the risk of mental health problems depends upon historical context and personal

experiences; thus, it is important that the evidence found in the literature is not seen as static, but rather as something that requires periodical review and comprehensive assessment including biopsychosocial, spiritual, and subjective dimensions of experiences and mental illness.<sup>42,50</sup>

Lastly, besides the need for larger samples, it is important to note that sampling bias was inherent to most of the studies included; Song et al.<sup>51</sup> proposed that poor mental health could be a factor hindering functioning in affected people, which, in turn, could prevent help-seeking behavior. Considering this and that most studies enroll voluntary participants, there is a possibility that results may have been underestimated. Additional limitations to be aware of include potential validation of transcultural assessment instruments and recall and self-selection bias.

## **Discussion**

Considering the magnitude of the challenge to provide mental care for a huge number of international migrants, the literature regarding this subject is underexplored. Overall, the results of the available studies indicate that migration can be a stressful experience, and carries the potential to expose the individual to one or even a set of traumatic experiences, including complex trauma (such as sexual violence and war trauma).<sup>52</sup> Some authors defend a selection hypothesis that posits that the increased rate of mental disorders in migrants is due to the selective migration of predisposed people, but longitudinal data are now available to oppose that theory.<sup>53</sup> Many authors have stated that, for millions of people, migration is becoming a process that carries intense levels of stress, which can overwhelm human adaptive capacity and trigger mental or physical problems, symptoms, or illnesses. Some authors have even proposed the existence of a distinctive suffering condition typical of the stress associated with immigration: "Ulysses syndrome" or the "immigrant syndrome of chronic and multiple stress," which resembles an adjustment disorder with cultural aspects.<sup>54</sup> In this sense, the migrant syndrome of chronic and multiple stress would belong more to the field of mental health than to psychopathology itself, since immigrants do not necessarily suffer from mental illness, but rather experience a series of symptoms caused by multiple stressors.<sup>55</sup> If the situation linked to the stressful events is not resolved, there is a risk that mental illness may develop. Outlining and recognizing this framework of adaptation to the stress associated with migration points out multiple possibilities on a continuum of adjustment, which would range from complete adaptation (or reported emotional growth via the mourning of migratory experience) to the immigrant syndrome of chronic and multiple stress, and even further, to the development of mental illness (e.g., PTSD if there was trauma involved).

Hence, considering that migrant populations are more affected by PTSD (and by other psychiatric disorders, such as major depression), which has been implicated in worse functioning,<sup>49,51,56</sup> it is essential for the health system and health providers to pay attention to the mental health of migrants in relation to trauma exposure.

Characteristics of the receiving country also have an impact on migrants' mental health. For example, migrants living in an area with a low ethnic density are at an increased risk of psychosis.<sup>57</sup> In general, treatment adherence is lower in immigrants, which is an aspect to consider when offering services to this population.<sup>58</sup> Heterogeneity across studies regarding the population, the instruments used to assess exposure to traumatic experiences and mental health outcomes, and the convenience sampling method used are limitations which should be borne in mind when interpreting our findings. Many mental health studies, for example on suicide, often exclude people who recently immigrated (which is partly relevant considering that a culture-specific adjustment syndrome should not be treated as a mental disorder), but more specific research on migration and mental health is still warranted.<sup>59</sup> Clinically significant dimensions of stress-related disorders, such as cognitive deficits, also remain highly underexplored among migrants.<sup>60</sup> Nevertheless, the considerably higher prevalence of PTSD among migrants, and especially among refugees, does leave little room for doubt that those experiences are strongly associated with this specific illness.

Berry's acculturation model proposes that, the more marginalized migrants are in their new community, the higher the risk to their mental health. In general, difficulties with social adjustment are often cited as a predictor of mental illness, drug relapse, and low adherence to treatment in various mental disorders.<sup>61-65</sup>

Mental health services working with migrants in Brazil need to be prepared for a population with specific difficulties linked to the stress of acculturation and possible trauma, as well as to a profile of lower treatment adherence and more mental health illness in general. Clinicians must also have the cultural awareness and sensitivity needed to distinguish between genuine mental illness (such as PTSD) and psychosocial adjustment difficulties (such as Ulysses syndrome), and thus provide appropriate treatment.

## Disclosure

The authors report no conflicts of interest.

## References

- United Nations, Department of Economic and Social Affairs, Population Division, International Migration. International migration flows to and from selected countries: the 2015 revision [Internet]. 2015 [cited 2017 Jul 20] [www.un.org/en/development/desa/population/migration/data/empirical2/migrationflows.shtml](http://www.un.org/en/development/desa/population/migration/data/empirical2/migrationflows.shtml).
- O Estrangeiro. Uma década de migrações [Internet]. 2016 [cited 2017 Jul 20]. [oestrangeiro.org/2016/07/23/uma-decada-de-migracoes/](http://oestrangeiro.org/2016/07/23/uma-decada-de-migracoes/).
- Foster RP. When immigration is trauma: guidelines for the individual and family clinician. *Am J Orthopsychiatry*. 2001;71:153-70.
- Takeuchi DT, Akgría M, Jackson JS, Williams DR. Immigration and mental health: diverse findings in Asian, black, and Latino populations. *Am J Public Health*. 2007;97:11-2.
- Achotegui J. Los duelos de la migración: una perspectiva psicopatológica y psicosocial. In: Perdiguero E, Comelles J, editores. *Medicina y cultura* Barcelona: Bellaterra; 2000.
- Saha S, Chant D, Welham J, McGrath J. A systematic review of the prevalence of schizophrenia. *PLoS Med*. 2005;2:e141.
- Thase ME, Kingdon D, Turkington D. The promise of cognitive behavior therapy for treatment of severe mental disorders: a review of recent developments. *World Psychiatry*. 2014;13:244-50.
- Costa JRA, Lima JV, Almeida PC. Stress no trabalho do enfermeiro. *Rev Esc Enferm USP*. 2003;37:63-71.
- Bisson JI, Sakhuja D. Adjustment disorders. *Psychiatry*. 2006;5:240-42.
- Lechner E. Imigração e saúde mental. *Rev Migrações*. 2007;1:79-101.
- Berra S. Agència d' Avaluació de Tecnologia i Recerca Mèdiques. Necessitats en salut i utilització dels serveis sanitaris en la població immigrant a Catalunya: revisió exhaustiva de la literatura científica Catalunya: Agència d' Avaluació de Tecnologia i Recerca Mèdiques; 2004.
- Ramos N. *Psicologia clínica e da saúde*. Lisboa: Universidade Aberta; 2004.
- Ramos N. Gênero e migração: questionando dinâmicas, vulnerabilidades e políticas de integração e saúde da mulher migrante. In: Seminário Internacional realizado na Universidade Federal de Santa Catarina; 23-26 de agosto de 2010; Florianópolis, Brasil. p1-9.
- Achotegui JL. Migración y crisis: el síndrome del inmigrante con estrés crónico y múltiple (síndrome de Ulises). *Av Salud Ment Relac*. 2008;7:1-22.
- Franken I, Coutinho Mda Pde L, Ramos N. Migração e qualidade de vida: um estudo psicossocial com brasileiros migrantes. *Estud Psicol (Campinas)*. 2009;26:419-27.
- LeMaster JW, Broadbridge CL, Lumley MA, Arnetz JE, Arfken C, Fetters MD, et al. Acculturation and post-migration psychological symptoms among Iraqi refugees: a path analysis. *Am J Orthopsychiatry*; 2017 Mar 2. doi: 10.1037/ort0000240. [Epub ahead of print]
- Kane JC, Johnson RM, Robinson C, Jernigan DH, Harachi TW, Bass JK. Longitudinal effects of acculturation on alcohol use among Vietnamese and Cambodian immigrant women in the USA. *Alcohol Alcohol*. 2016;51:702-9.
- Berry JW. Immigration, acculturation, and adaptation. *Appl Psychol*. 1997;46:5-68.
- Portes A. Introduction: the debates and significance of immigrant transnationalism [Internet]. 2001 Jul [cited 2017 Jul 20]. [onlinelibrary.wiley.com/doi/10.1111/1471-0374.00012/abstract](http://onlinelibrary.wiley.com/doi/10.1111/1471-0374.00012/abstract).
- Kaplan I, Stow HD, Szwarc J. Responding to the challenges of providing mental health services to refugees: an Australian case report. *J Health Care Poor Underserved*. 2016;27:1159-70.
- Bogic M, Njoku A, Priebe S. Long-term mental health of war-refugees: a systematic literature review. *BMC Int Health Hum Rights*. 2015;15:29.
- Blair RG. Risk factors associated with PTSD and major depression among Cambodian refugees in Utah. *Health Soc Work*. 2000;25:23-30.
- Kolassa IT, Ertl V, Eckart C, Kolassa S, Onyut LP, Elbert T. Spontaneous remission from PTSD depends on the number of traumatic event types experienced. *Psychol Trauma*. 2010;2:169-74.
- Nygaard M, Sonne C, Carlsson J. Secondary psychotic features in refugees diagnosed with post-traumatic stress disorder: a retrospective cohort study. *BMC Psychiatry*. 2017;17:5.
- Peters E, Ward T, Jackson M, Morgan C, Charalambides M, McGuire P, et al. Clinical, socio-demographic and psychological characteristics in individuals with persistent psychotic experiences with and without a "need for care". *World Psychiatry*. 2016;15:41-52.
- Hollander AC, Dal H, Lewis G, Magnusson C, Kirkbride JB, Dalman C. Refugee migration and risk of schizophrenia and other non-affective psychoses: cohort study of 1.3 million people in Sweden. *BMJ*. 2016;352:i1030.
- Selten J-P, van Os J, Cantor-Graae E. The social defeat hypothesis of schizophrenia: issues of measurement and reverse causality. *World Psychiatry*. 2016;15:294-5.
- Morgan C, Gayer-Anderson C. Childhood adversities and psychosis: evidence, challenges, implications. *World Psychiatry*. 2016;15:93-102.
- American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5)*. Arlington: American Psychiatric Publishing; 2013.
- Bisson JI, Cosgrove S, Lewis C, Roberts NP. Post-traumatic stress disorder. *BMJ*. 2015;351:h6161.

- 31 Brewin CR, Andrews B, Valentine JD. Meta-analysis of risk factors for posttraumatic stress disorder in trauma-exposed adults. *J Consult Clin Psychol*. 2000;68:748-66.
- 32 Geddes J, Price J, McKnight R. *Psychiatry*. Oxford: Medical Publications; 2012.
- 33 Lindert J, Ehrenstein OS, Priebe S, Mielck A, Brähler E. Depression and anxiety in labor migrants and refugees - a systematic review and meta-analysis. *Soc Sci Med*. 2009;69:246-57.
- 34 Rasmussen A, Crager M, Baser RE, Chu T, Gany F. Onset of posttraumatic stress disorder and major depression among refugees and voluntary migrants to the United States. *J Trauma Stress*. 2012; 25:705-12.
- 35 Bas-Sarmiento P, Saucedo-Moreno MJ, Fernandez-Gutierrez M, Poza-Mendez M. Mental health in immigrants versus native population: a systematic review of the literature. *Arch Psychiatr Nurs*. 2017;31:111-21.
- 36 Guardia D, Salleron J, Roelandt JL, Vaiva G. [Prevalence of psychiatric and substance use disorders among three generations of migrants: results from French population cohort]. *Encephale*. 2016 Sep 16. pii S0013-7006(16)30181-6. doi: 10.1016/j.encep.2016.06.008. [Epub ahead of print]
- 37 Atwoli L, Stein DJ, Koenen KC, McLaughlin KA. Epidemiology of posttraumatic stress disorder: prevalence, correlates and consequences. *Curr Opin Psychiatry*. 2015;28:307-11.
- 38 Aragona M, Pucci D, Mazzetti M, Maisano B, Geraci S. Traumatic events, post-migration living difficulties and post-traumatic symptoms in first generation immigrants: a primary care study. *Ann Ist Super Sanita*. 2013;49:169-75.
- 39 Chu T, Keller AS, Rasmussen A. Effects of post-migration factors on PTSD outcomes among immigrant survivors of political violence. *J Immigr Minor Heal*. 2013;15:890-7.
- 40 Finklestein M, Solomon Z. Cumulative trauma, PTSD and dissociation among Ethiopian refugees in Israel. *J Trauma Dissociation*. 2009;10:38-56.
- 41 Kartal D, Kiropoulos L. Effects of acculturative stress on PTSD, depressive, and anxiety symptoms among refugees resettled in Australia and Austria. *Eur J Psychotraumatol*. 2016;7:28711.
- 42 Priebe S, Giacco D, El-Nagib R. Public health aspects of mental health among migrants and refugees: a review of the evidence on mental health care for refugees, asylum seekers and irregular migrants in the WHO European region [Internet]. WHO Health Evidence Network Synthesis Reports. Copenhagen: WHO Regional Office for Europe; 2016.
- 43 Schweitzer R, Melville F, Steel Z, Lacherez P. Trauma, post-migration living difficulties, and social support as predictors of psychological adjustment in resettled Sudanese refugees. *Aust N Z J Psychiatry*. 2006;40:179-87.
- 44 Silove D, Sinnerbrink I, Field A, Manicavasagar V, Steel Z. Anxiety, depression and PTSD in asylum-seekers: associations with pre-migration trauma and post-migration stressors. *Br J Psychiatry*. 1997;170:351-7.
- 45 Steel Z, Silove D, Phan T, Bauman A. Long-term effect of psychological trauma on the mental health of Vietnamese refugees resettled in Australia: a population-based study. *Lancet*. 2002;360:1056-62.
- 46 Teodorescu DS, Heir T, Hauff E, Wentzel-Larsen T, Lien L. Mental health problems and post-migration stress among multi-traumatized refugees attending outpatient clinics upon resettlement to Norway. *Scand J Psychol*. 2012;53:316-32.
- 47 Schweitzer RD, Brough M, Vromans L, Asic-Kobe M. Mental health of newly arrived Burmese refugees in Australia: contributions of pre-migration and post-migration experience. *Aust N Z J Psychiatry*. 2011;45:299-307.
- 48 Porter M, Haslam N. Predisplacement and postdisplacement factors associated with mental health of refugees and internally displaced persons: a meta-analysis. *JAMA*. 2005;294:602-12.
- 49 Norris AE, Aroian KJ. Avoidance symptoms and assessment of posttraumatic stress disorder in Arab immigrant women. *J Trauma Stress*. 2008;21:471-8.
- 50 Kirmayer LJ, Narasiah L, Munoz M, Rashid M, Ryder AG, Guzder J, et al. Common mental health problems in immigrants and refugees: general approach in primary care. *CMAJ*. 2011;183:E959-67.
- 51 Song SJ, Kaplan C, Tol WA, Subica A, de Jong J. Psychological distress in torture survivors: pre- and post-migration risk factors in a US sample. *Soc Psychiatry Psychiatr Epidemiol*. 2015;50:549-60.
- 52 Comas-Diaz L, Greene B. Women of color with professional status. In: Comas-Diaz L, Greene B, editors. *Women of color: integrating ethnic and gender identities in psychotherapy*. New York: Guilford; 1994. p.374-88.
- 53 van der Ven E, Dalman C, Wicks S, Allebeck P, Magnusson C, van Os J, et al. Testing Odegaard's acculturation migration hypothesis: a longitudinal cohort study of risk factors for non-affective psychotic disorders among prospective emigrants. *Psychol Med*. 2015;45:727-34.
- 54 Serrano Diaz de Otorala M, Gomez-Arnau Ramirez J, Martinez de Velasco R, Andrada Meyer J. Acculturation stress in immigrant population, migratory mourning and associated comorbidities. *Eur Psychiatry*. 2011;26:476.
- 55 Grimaldi-Bensouda L, Rouillon F, Astruc B, Rossignol M, Benichou J, Falissard B, et al. Does long-acting injectable risperidone make a difference to the real-life treatment of schizophrenia? Results of the cohort for the general study of schizophrenia (CGS). *Schizophr Res*. 2012;134:187-94.
- 56 Kulwicksi A, Ballout S. Post traumatic stress disorder (PTSD) in Arab American refugee and recent immigrant women. *J Cult Divers*. 2015;22:9-14.
- 57 Heinz A, Deserno L, Reininghaus U. Urbanicity, social adversity and psychosis. *World Psychiatry*. 2013;12:187-97.
- 58 Sabaté E. World Health Organization (WHO). Adherence to long-term therapies: evidence for action. Geneva: WHO; 2003.
- 59 Schaffer A, Sinyor M, Kurdyak P, Vigod S, Sareen J, Reis C, et al. Population-based analysis of health care contacts among suicide decedents: identifying opportunities for more targeted suicide prevention strategies. *World Psychiatry*. 2016;15:135-45.
- 60 Veliu B, Leatham J. Neuropsychological assessment of refugees: methodological and cross-cultural barriers. *Appl Neuropsychol Adult*; 2016: 1-12. doi: 10.1080/23279095.2016.1201483. [Epub ahead of print]
- 61 Macbeth A, Gumley A, Schwannauer M, Fisher R. Service engagement in first episode psychosis: clinical and premorbid correlates. *J Nerv Ment Dis*. 2013;201:359-64.
- 62 Leclerc E, Noto C, Bressan RA, Brietzke E. Determinants of adherence to treatment in first episode psychosis: a comprehensive review. *Rev Bras Psiquiatr*. 2015;37:168-76.
- 63 Leclerc E, Mansur RB, Brietzke E. Determinants of adherence to treatment in bipolar disorder: a comprehensive review. *J Anxiety Disord*. 2013;149:247-52.
- 64 Ramirez N, Arranz B, Salavert J, Alvarez E, Corripio I, Duenas RM, et al. Predictors of schizophrenia in patients with a first episode of psychosis. *Psychiatry Res*. 2010;175:11-4.
- 65 Mazza M, Mandelli L, Di Nicola M, Harnic D, Catalano V, Tedeschi D, et al. Clinical features, response to treatment and functional outcome of bipolar disorder patients with and without co-occurring substance use disorder: 1-year follow-up. *J Affect Disord*. 2009;115:27-35.