The Influence of Daily Stressors on PTSD Among Refugees – The Strive for a more Complete Understanding of the Aetiology of PTSD.

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Abstract:

Background: There is a growing number of displaced refugees in the world at high risk for developing Post-traumatic stress disorder (PTSD). The established direct-effect model for understanding the aetiology of PTSD is challenged by a number of studies finding that trauma accounts for a limited variance in PTSD symptoms. This is giving way to the study of daily stressors to broaden the understanding of PTSD. The aims of this review is to assess the influence of daily stressors on PTSD among refugees and to discuss its possible mechanisms and clinical implications.

Methods: A search was conducted in Medline, using Mesh-terms and various synonyms for daily stressors. N=123 results were found. Only original studies examining adults and populations including refugees were included. Thus, a final of ten studies were included.

Results: Only cross-sectional studies were found. All studies were assessed using the Post-migration living difficulties (PMLD) questionnaire as a framework, assessing seven different areas of daily stressors. Of these, employment, poverty, immigration difficulties and acculturation were found to be associated with PTSD. Eight of the ten studies found at least one daily stressor to be associated with PTSD symptoms.

Conclusions: Daily stressors were overall found to be associated with PTSD, especially those linked to acculturation. This indicates that a combined trauma-focused and psychosocial approach would more accurately predict PTSD than the direct-effect model and imply that interventions should consider both approaches in the treatment of PTSD.

Background

By the end of 2012 there were 45.2 million people forcefully displaced worldwide as a result of persecution, conflict and generalized violence (1). All of them were at high-risk for mental health disorders, post-traumatic stress disorder (PTSD) and depression being the most prevalent (2). In a meta-analysis from 2009 Steel et al. found that PTSD had a prevalence of 30.6 % among populations exposed to mass conflict and displacement (2).

The diagnostic criteria of PTSD were originally developed based on research and clinical experiences with American veterans of the Vietnam War. Here, it was found that the same constellation of symptoms could be found among survivors of a sufficiently terrifying event, usually described as the perception of a life-threatening event beyond ones control(3). Therefore, when trying to predict the severity of PTSD and to explain its symptomatology, the main emphasis has traditionally been on traumatic events, like those that can be found in war-events checklists as the Harvard Trauma Questionnaire. Moreover, the prevalent opinion has been that there is a direct "dose-effect" relationship between trauma and PTSD symptom severity(4). This approach is called the direct effect model (see figure 1) or the trauma-focused approach, which has been validated in numerous studies (2;4;5). It does, however, not fully predict PTSD or account for all of the variance in the symptomatology. For example, Miller et al. showed in a recent study from Afghanistan, that war exposure only accounted for less than 25 % of the variance in PTSD symptoms (6).

Figure 1. Direct-effect model

Findings like these have led some researches to take a psychosocial approach to improve their understanding of PTSD and refugee mental health in general. Here the focus is not so much on the direct exposure to violence and conflict, but more so on the stressful social and material conditions that follow; such as poverty, displacement and the destruction of social networks. Such factors are often referred to as daily or post-migratory stressors.

Over the last two decades, the impact of daily stressors on refugee mental health and especially depression has become well established (3). It however remains controversial to what extent they are associated with the risk of PTSD and the symptom severity of PTSD. There is also little consensus regarding, which daily stressors have the greatest impact and how they exert their influence.

Whether daily stressors affect PTSD symptoms has clear implications for the treatment of PTSD as the advised treatments stemming from the trauma-focused and the psychosocial approach varies greatly. In the trauma-focused approach, the treatment is focused primarily on resolving the psychological issues revolving the trauma. In the psychosocial approach, the focus is on alleviating the pressing stressors in the patient's daily life. The identification of potentially harmful stressors facing patients attending PTSD-clinics can therefore provide insights to improving treatments strategies for these patients.

Aims;

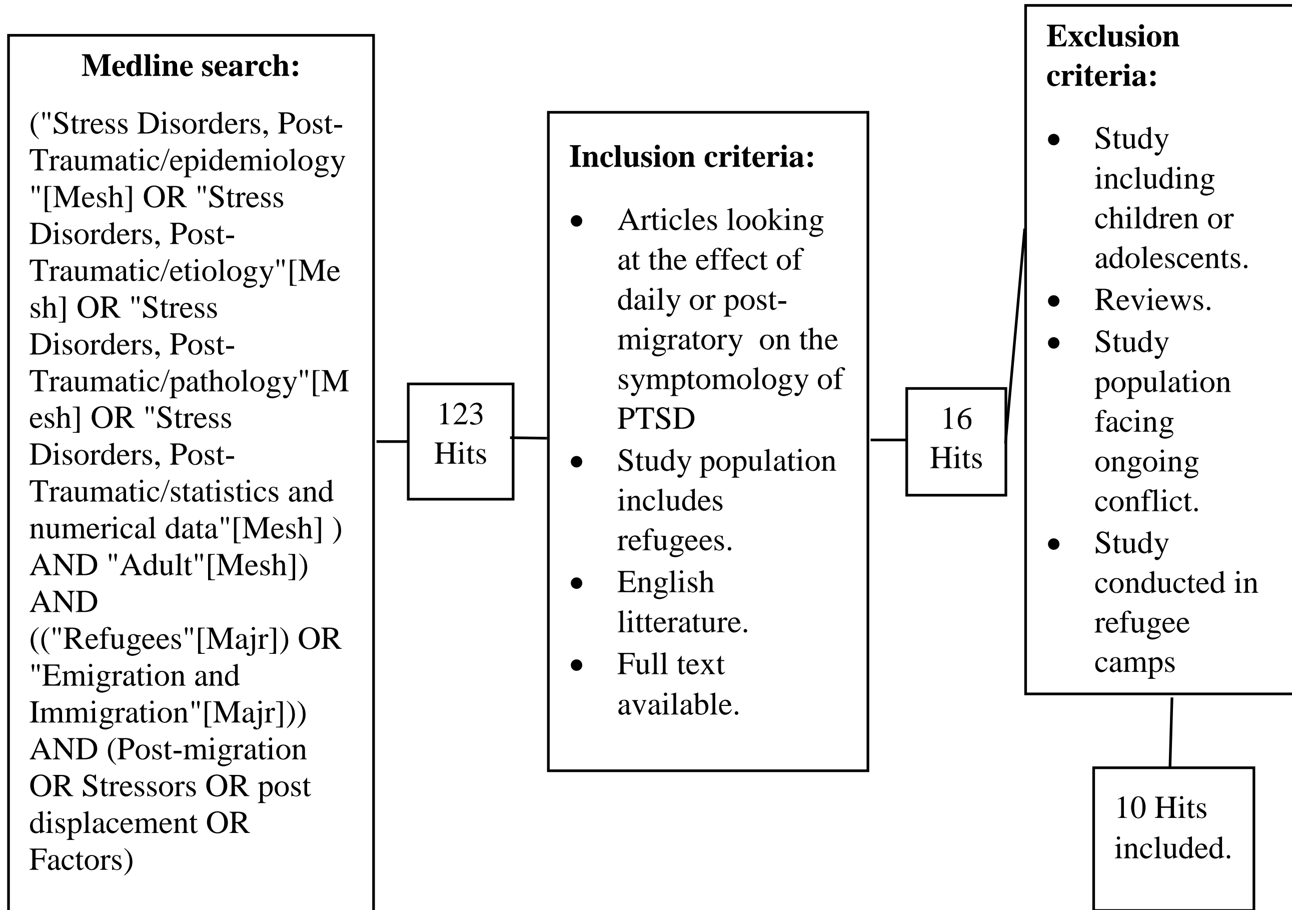
1. To systematic review the current literature to assess the impact of daily- or post-migratory stressors on the symptoms of PTSD among refugees.
2. To discuss the findings using relevant psychological and biological theories.
3. To discuss the possible clinical implications of the findings.

Methods

A Medline database search was carried out mainly using MESH-terms (See Table 1). Different aspects of the major MESH-term "PTSD" were included as was the major MESH-terms "Refugees", "Emigration and Immigration" and "Adult". Added to those were a general search for post-migration and daily stressors, using the broadest possible search words, "post-migration", "stressors", "post displacement" and "factors" since different authors use several different terms to describe daily stressors. Because daily stressors change through the different phases of migration, the emphasis in this review will be on the daily stressors facing displaced refugees, which either are in the process of seeking asylum or have been granted asylum. Thus, only studies, which comprise or partly comprises of refugees will be included. All the abstracts from the resulting 123 hits were

read and a final of ten articles were found to meet all the inclusion and exclusion criteria (Table 1). From the ten articles and relevant reviews, citations, references and cross references where reviewed to find additional relevant articles that had not been found in the search. None where found, indicating that the search had been successful at finding the majority of the relevant literature.

Table 1



Results

The reviewed studies (see appendix 1) share several characteristics. Their design are all cross-sectional and they all relied on structured clinical interviews and self-report questionnaires, except for two that relied solely on the later. Most of them deal with externally displaced refugees either during their asylum process or shortly after they have received permanent residency. Only one deals with both refugees and internally displaced war survivors (7). There is however considerable variation, when it comes to which stressors they have included. Some studies looked at only two

stressors but most looked at around five. The “Post-migration living difficulties (PMLD) questionnaire developed by Silove et al. is used in 3 of the studies, though in a modified version in the study by Schweitzer al. (8-10). It covers 23 different stressors, more than any of the others. Silove et al. developed the checklist in 1995 for their study of post-migration stressors among Tamil asylum seekers, asking participants to rate on a scale of 1-5 how much the item had worried them in the last 12 months. It covers seven different areas; communication, discrimination, worry about family back home, employment, immigration difficulties, poverty and acculturation (including social network.). These seven areas does overall correlate well with, which stressors the included studies asses and are useful as a framework to review their results.

Communication

Several of the studies included language skills in their design. Carlsson et al. found in their study of 63 male tortured refugees in Denmark that 40. 3 % where able to speak Danish (11). It was however not a significant predictor of any mental health outcomes including PTSD symptoms. An alike study from Norway by Teodorescu et al. had very similar findings (12). Schweitzer et al. found that 17, 5 % of 63 Sudanese refugees in Australia had great difficulty speaking English but again it was found not to have a significant impact on PTSD symptoms (8). Silove et al had similar findings among 38 Tamil refugees in Sidney (9). The findings indicate that communication is not a significant stressor or associated to PTSD symptoms.

Discrimination.

Half of the reviewed studies included discrimination as a variable. Lidencrona et al. found that among resettled refugees from the Middle East in Sweden, discrimination was a significant stressor contributing heavily to variance in resettlement stress but didn’t find it to be associated to PTSD (13). Silove at al. did not find it to be a highly reported stressor for the Tamil refugees in Australia but did find that it was significantly associated with PTSD. Carlsson et al. found discrimination to be very prevalent with 54.8 % of the patients having experienced discrimination within the last 3 months but did not examine for any association to PTSD symptoms. None of the other studies found discrimination to be associated to PTSD symptoms (8;10;11).

Worry about family back home

Only the three Australian studies using PMLD and the Swedish study by Lidencrona et al. examined this stressor even though it seems to be one of the most prevalent stressors. Silove et al. found that being unable to return home in an emergency and worries about family back home, was respectively considered the second and sixth most serious stressor out of the 23 that were assessed. Schweitzer et al. also found worry about family not in Australia to be the highest self-reported stressor with 90 % of the Sudanese refugees classifying at it as a serious or very serious difficulty. Despite of this, none of the studies could find any association to PTSD symptoms.

Employment

There seems to be consensus that unemployment is a significant stressor as only the study by Miller et al. of Bosnian refugees in Chicago didn't include it as a separate variable(14). It has also been found by Silove et al and Schweitzer at al. to be one of the most serious difficulties facing refugees. There is however, limited consensus as to whether it is associated to PTSD as three of the nine studies found the association to be significant. Teodorescu et al did two studies in 2012 of refugees attending an out-patient clinic in Norway. One of them found unemployment was negatively significant correlated to all of the assessed domains of quality of life but did not find it to be significantly correlated to PTSD symptoms (12). The other study however found that unemployment was heavily associated with higher psychiatric morbidity and PTSD symptom severity(15). Of all the stressors in that study, unemployment was the most influential. This was also found in the study by Silove et. Al. Beiser et al. completed in 2011 the largest of the included studies, were they identified risk factors for developing PTSD among 1603 Tamils in Toronto, Canada(16). Unemployment was found to be a significant independent risk factor.

Immigration difficulties

In PMLD, this covers delays in processing of application, fears of being sent home, conflict with officials and detention. They are stressors mainly aimed at refugees in the asylum-seeking phase why they are only included in the studies by Steel et al. and Silove et al. that deal primarily with asylum-seekers. Silove et al. found that only delays in processing of applications were deemed a serious problem by the refugee but did over all find immigration difficulties to be significantly associated to PTSD symptoms. Steel et al. found that immigration difficulties contributed slightly but significantly to their model for predicting PTSD.

Poverty

For the following, a broad definition of poverty is used, including lack of money as well as the refugee's access to welfare and health services. Neither Silove et al. or Schweitzer et al. found that the refugees considered lack of money a serious problem. Silove at al. however found that access to healthcare and welfare services was among the highest self-reported stressors. None of the two found any associations with poverty to PTSD symptoms. Steel et al. found no association with lack of money but did find that worries about access to health and welfare services significantly contributed to PTSD symptoms. Beiser et al. assessed poverty through household incomes and found that 37 % of the Tamil refugees to live below Canada's low income cut-off, which significantly enhanced the risk for PTSD: Lidencrona et al, Letica-Crepulja et al.(7) and Teodorescu et al.(15) also assessed different aspects of poverty in relation to PTSD but found no significant association.

Acculturation (including social network)

Acculturation is the personal and cultural change; a person goes through when placed in a new cultural setting. It is associated with a broad range of stressors, including social isolation, boredom, a loss of status and a loss of a sense of belonging. The vast majority of the included studies looked at a least one acculturation related stressor, as only Beiser et al. and Letica-Crepulja et al. did not include any. Silove et al. didn't find any acculturation stressors to be considered very worrisome among the Tamil asylum seekers but did find loneliness and boredom significantly associated to PTSD symptoms. Schweitzer et al. found that 37 % reported difficulty adjusting to cultural life in Australia a serious problem and assessed several acculturation stressors but only found ethnic community support to have significant association to PTSD symptoms. Miller et al. found social isolation to be significantly associated to PTSD symptoms in a non-clinical community group, but found no association in the clinical group. Both the studies by Teodorescu et al. looked at social network and social integration and both of them found that they were related to PTSD symptoms. Steel et al. found that loss of culture and loss of social network both significantly contributed to PTSD symptoms in their model. Carlsson et al. assessed social relations and having a sense of belonging and found that they were significant predictors for PTSD. Lidencrona et al examined lost roles in society, isolation, lost respect and status but found no association to PTSD symptoms

Summary

In table 2, the above findings have been summarized. It shows that roughly around one third of the daily stressors investigated did have a significant association to PTSD. The stressors associated with acculturation and immigration difficulties were the ones most closely associated to PTSD. Poverty and employment were found to be associated in some of the studies. Whereas communication, discrimination and worry about family back home had none or limited association with PTSD:

Daily stressors.	No. of studies investigating stressors	Found to be associated to PTSD
Communication	4	0
Discrimination	5	1
Worry about family back home	4	0
Employment	9	3
Immigration difficulties	2	2
Poverty	7	2
Acculturation	8	6
Total	33	14

Table 2. Summary of stressors.

Discussion

Strengths and limitations

There are several considerable limitations to the findings of the reviewed studies. For strengths and limitations of specific studies, please see Appendix 1. Generally, the studies are all quite vulnerable to selection biases, namely sampling bias, as it is questionable if the participants in many of the studies are representative for the targeted population. Some studies only looked at patients attending clinics, thereby only targeting the most traumatised refugees. Others targeted a specific ethnicity trying to include as many as possible, which would tend to include more high functioning refugees. Fortunately, most of the studies had quite high response rates. The study populations were mostly quite small averaging around 200 providing limited statistical power. There are also two potential information biases. A recall bias for remembering past trauma and the tendency for asylum-seekers to exaggerate their symptoms hoping it could help the attain asylum. The above biases are problematic for both the internal and external validity of the studies. The main problem with the

findings are however that they solely rely on studies using a cross-sectional design that does not allow for cause-and-effect relationships. They only allow for snap-shots of how different variables relate. They can therefore accurately describe that a self-reported high amount of daily stressors are associated to high levels of PTSD symptoms but they are not entirely suited to describe if the daily stressors cause the high levels of PTSD symptoms. It could be the other way around or caused by an unidentified confounder. Only longitudinal studies can help to disentangle the complex pathways linking daily stressors and PTSD symptoms.

There also several limitations to this literature review. Given the highly diverse terminology used within the field, creating a Medline search that finds all the relevant studies is problematic. It must therefore be considered that the search is incomplete. Even though the use of cross-references has limited the likelihood of this. The results of the review are also from very different and diverse settings, including different ethnicities, clinical and non-clinical groups and different stages after trauma exposure. Thus, making generalisations from the findings problematic.

The impact of daily stressors on PTSD symptoms

The aim of this review was to assess if daily stressors had an impact on PTSD symptoms. When reviewing the above results, it can seem as daily stressors have a limited effect upon PTSD symptoms, but it is worth noting that out of the ten studies, eight of them found that one or more daily stressors either significantly predicted PTSD or significantly contributed to variance in PTSD symptoms. The two studies that didn't find any significant associations were Letica-Crepulja et al.'s study of displaced war survivors in Croatia(7) and Lidencrona et al.'s study of recently resettled refugees from the Middle East in Sweden(13). Letica-Crepulja et al. only looked at two daily stressors; level of income and education, which is a very narrow definition. Including factors like social isolation or discrimination would have strengthened the study. The two factors were found to be very vaguely associated with PTSD. Distress during trauma, was found to be the strongest predictor, causing Letica-Crepulja et al. to suggest that a trauma-focused approach would be most effective in treating PTSD. This study is the only one to include internally displaced victims of war and conflict, which could indicate that there is less stress related to acculturation and it is therefore valid to consider that the accumulative levels of daily stress would be lower, than for externally displaced refugees. Thereby limiting the use of these findings when applied to externally displaced refugees. The findings from the other studies also imply that poverty only seems to be moderately

linked to PTSD. The study of recently resettled refugees in Sweden looked at an impressive 15 different resettlement stressors affecting the 5 core adaptive systems defined by Silove(4); attachment, security, identity and roles, justice/human rights and existential/meaning. None of them did significantly affect the PTSD core symptoms in their model. Pre-migration trauma, namely torture made the largest contribution to their model. Lidencrona et al. mainly attributes this to their use of only the PTSD core symptoms; re-experience, intrusion and avoidance as variables in their model, as they argue that they would be the ones least affected by daily stressors. They conclude from their findings, that daily stressors are significantly associated with the general mental health of refugees but less so with the central aspects of PTSD.

The remaining studies all found some association with daily stressors and PTSD, even though there was a considerable difference between, which daily stressors they found had any impact. Which also is to be expected considering the different methods used and the very diverse populations that was investigated. Some trends did however appear. Both studies investigating immigration difficulties found it to influence PTSD symptoms, suggesting that refugees are especially vulnerable to this. However, both the studies that investigated immigration difficulties was examining populations including asylum seekers, so the results cannot be generalized to refugees after the have achieved asylum. Stressors associated with acculturation and social relations where found to be the ones most highly associated with PTSD. Interestingly this does not correlate well with the findings of a meta-analysis from 2005 that assessed post-displacement factors association with mental health(17). It found cultural stressors had no significant association to mental health. This could imply that stressors associated to PTSD not necessarily are the same that affect general mental health.

Schweitzer et al. and Silove et al. were the only two who consistently reported how much the investigated stressors worried the study population. Strikingly there seems to be little if any association to whether, how much stressors are cause for worry and how associated they are with PTSD symptoms. This is most clearly demonstrated by the fact that “worry about family about at home” is considered the most worrisome by Schweitzer et al. and the second most worrisome by Silove et. Al. They however do not find it to have any association to PTSD.

Daily Stressors and their mechanism of action

As the above results show, at least some daily stressors seem to worsen or even cause PTSD symptoms. This naturally leads to the question of how they exert their effect. Miller et Rasmussen suggests four potential reasons(18). Firstly, that they are immediate and chronic compared to trauma, which is a more distal experience. Secondly, that they largely are beyond peoples control. Thirdly, that they are pervasive within conflicted-affected populations. Lastly, that they in themselves can be traumatic.

Some of Miller et Rasmussen's points correlated well with what we are learning about trauma and stress from a bio-psycho-social standpoint. Research has now shown that post-traumatic growth is the normal result of traumatic stress(19), causing one to ask what are the conditions then that cause pathology. M. Christopher argues that three factors determine if trauma or stress turns into learning or a pathological stress response:

1) Person sufficiently healthy, including a balanced hypothalamic-pituitary-adrenal (HPA) axis.
2) The cognitive scheme available to transform stress into learning.
3) Social relationships that are responsive and flexible enough to adequately dampen the stress arousal.

A sufficiently traumatic experience disrupts the HPA-axis, causing chronic low cortisol levels. The hormone that is responsible for shutting down the fight or flight response(20). Furthermore, it causes the body to develop three times as many glucocorticoid receptors causing arousal responses to have wider fluctuations, which helps to explain the hyper-vigilance often associated with PTSD(21). These physiological changes are not necessarily associated with pathology but they seem to be permanent and leaves the individual at a lifelong higher risk for developing a stress related pathological response. M. Christopher concludes that the most important factor determining, if a stress response leads to pathology is the individual's relationship with its environment because the environment largely determines whether a person can cope with a trauma and dampen the arousal response. This could help explain the importance of daily stressors, as they reflect a person's immediate environment. It is also worth noting that his findings underline the value of social relations, which correlates well with the findings of this review.

The fact that there is physiological data, implying that traumatic events damage the HPA-axis and thereby leaving the body vulnerable to further trauma correlates well with one of the dominant theories on the aetiology of PTSD called the dose-effect relationship. It argues the more trauma an individual experiences, the higher is their risk for developing PTSD. This theory has been validated in several studies (4;5). It is therefore worth considering as Miller et al. has, if daily stressors can be traumatogenic by themselves adding to this dose-effect relationship. The study by Beiser et al. suggests the validity of such an approach as it found a clear dose-effect response of number of stressors, both pre- and post-migration, with the risk of PTSD (16).

Working towards an integrated approach

Even though there are very considerable limitations to this review, most notably the sole reliance on cross-sectional studies, there seem to be evidence suggesting that some daily stressors are associated with PTSD. Which is further made likely by the possible mechanisms of action discussed above. This would imply that a psychosocial approach has some validity and that daily stressors should be considered a potential risk factor for PTSD. It is therefore also valid to consider a revaluation of the direct-effect model. Lately Fernando et al has done just that by creating a model (figure 2) that merges the direct effect model with the psychosocial approach (22).

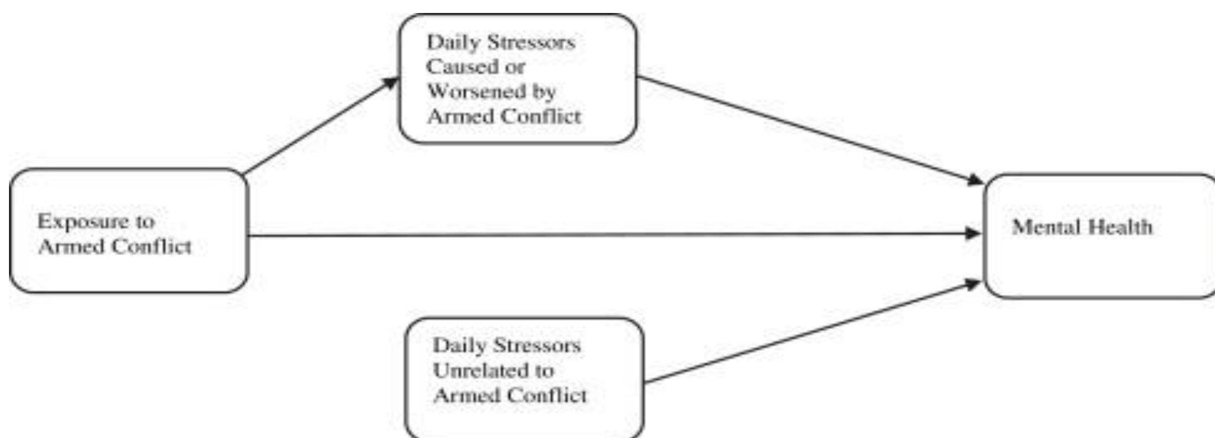


Figure 2. Daily stressors partly mediating exposure to armed conflict to mental health.

It was developed as a model to predict the psychological and psychosocial distress among Sri Lankan youths by looking at war exposure as well as daily stressors, both those caused directly by war exposure and those there were unrelated. The model was found to be valid in their study, as they found that all three variables significantly affected psychological and psychosocial distress.

Daily stressors were even found to be stronger predictors of PTSD than direct exposure to conflict. Even though the model is not developed for displaced refugees, which is the focus of the majority of the included studies, the findings of Steel et al. support that it might be valid in a broader setting(10). They found that daily stressors exerted independent effect on PTSD as well as through an indirect mediation of pre-migration trauma among Tamil refugees in Australia. Miller et al. also argues that this model could be valid in a broader setting (16). He also argues that it would have an increased explanatory power compared to the direct effects model. It would weaken but not eliminate the direct link between traumatic events and mental health, including PTSD. It would thereby offer the possibility of bridging the division between the trauma-focused and psychosocial frameworks.

The findings of this small review, supports the possible validity of the model proposed by Fernando et al. as it reflects that some daily stressors, especially those relating to acculturation and social relations are associated to PTSD. It is not possible through this review to determine if that association is mainly through a direct effect or through the mediation of exposure to trauma. The findings are also only indicative of daily stressors impact in the post-migration phase. Other research does however show that daily stressors also are associated with PTSD symptoms in conflict settings and the migration phase (6;23). Further research is needed to clarify the pathways through which daily stressors affect PTSD. There is especially a need for large-scale longitudinal studies, which are better suited for clarifying these pathways than the cross-sectional studies that are reviewed here.

Clinical implications

The results show that daily stressors could be an important focus when it comes to treatment of PTSD. This is of particular interest as some of these daily stressors, e.g. unemployment, poverty and social isolation are potentially modifiable. Psychosocial interventions aimed at these might also not only help to alleviate PTSD symptoms but also symptoms of anxiety and depression, which are common comorbidities to PTSD (24). The varied findings of which daily stressors that were associated to PTSD could indicate that there are local and ethnic differences to which stressors affect PTSD. It is therefore advisable that a broad assessment of local stressors is undertaken, when planning interventions. Daily stressors that are the most easily modifiable should also be targeted first, for example assisting a patient in getting a job, before starting working with their sense of

belonging in the community. The findings of this review does not by any mean suggest that the traditional trauma focused approach should be abandoned but merely that it might be helpful adding psychosocial interventions. Additional research is needed to assess the effect of psychosocial based interventions.

Conclusion

The current literature on daily stressors association with PTSD among refugees largely reflects the existence of such an association. Eight of the ten studies found, were able to find significant associations to PTSD symptoms. Several different stressors has been identified and the ones linked to acculturation were found to be the most widely associated. These results correlate well with physiological findings and the bio-psycho-social theories. They also support the effort to create a model that merges the trauma-focused and psychosocial approaches to create a more complete understanding of the aetiology of PTSD, as well as the clinical usage of psychosocial interventions aimed at eliminating daily stressors. Longitudinal studies is needed to further explore the pathways through which daily stressors influence PTSD.

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