Author's response to reviews

Title: Posttraumatic Stress Disorder and Prolonged Grief in Refugees Exposed to Trauma and Loss

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Dr Michael Gerhard Odenwald
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Dear Dr. Odenwald,

Thank you for your consideration of the manuscript titled “Posttraumatic Stress Disorder and Prolonged Grief in Refugees Exposed to Trauma and Loss” (MS: 8446266131164893). We appreciate the thoughtful comments of the Reviewer and have revised our manuscript accordingly. Please find our responses to the Reviewer’s comments below.

Reviewer #1

Abstract

1. In the methods section, the authors state that they have measured English proficiency in the sample. However, not much is done with this data in the manuscript. Therefore, I suggest to delete this from the text or include results of this measurement. Otherwise, the sample may have been exposed to unnecessary measurements, which is not ethically sound.

We appreciate Reviewer #1’s comments. We investigated English proficiency as a predictor in the regression analyses. We believe it is an important variable to be considered due to the documented links between proficiency in the host country language and mental health (e.g., Steel et al., 2002; Takeuchi et al., 2007). However, our results indicated that English proficiency was not a significant predictor of class membership. One possible explanation for this is that stress related to poor English proficiency was encapsulated by the other living difficulties subscales. We have noted this in the discussion (page 14, paragraph 2).

It is notable that English proficiency did not predict membership in any of the symptomatic classes, despite research suggesting that proficiency in the language of the host country is associated with poorer mental health outcomes [1, 2]. It may be that the difficulties encompassed in the adaptation subscale (i.e., communication difficulties) encapsulated the effect of poor English proficiency.

2. The conclusions section should be rewritten, and become more specific as of the study’s results, and appealing for the readers. In its current form, I find it too superficial, it does not reflect properly the importance of the study.
We appreciate Reviewer #1’s suggestion to make our conclusions more specific to the study’s results. We have amended the conclusion section accordingly (page 17, paragraph 1).

Conflict-affected populations are at heightened risk for the development of disabling mental disorders like PTSD and PGD as a result of exposure to trauma and loss. The current findings show that distinct PTSD or PGD symptom profiles emerge even in individuals who have experienced loss in the context of mass trauma and persecution. These symptom profiles are associated with exposure to different types of refugee experiences, with exposure to traumatic loss predicting membership in a group characterized by high levels of both PTSD and PGD symptoms, while loss of culture and support predicts membership in a group with high levels of PTSD symptoms, and adaptation difficulties predict group membership associated with high levels of PGD symptoms. These results underscore the importance of identifying specific symptom profiles in individuals exposed to both trauma and loss. This may facilitate the development of intervention strategies that target specific types of distress in survivors of persecution and conflict.

Introduction:
3. Page 3: In the sentence Grief is an expected reaction following the loss of a loved one; however….however should be replaced by and. In the current form, the sentence suggests a contradiction.

We have rectified this error (page 3, paragraph 1).

Grief is an expected reaction following the loss of a loved one; and research suggests that grief responses that persist beyond six to twelve months after the loss may be indicative of prolonged grief disorder (PGD).

Methods:
4. Please report whether the instruments used were properly translated and validated across cultures, which cut-offs were used?

We have noted that all measures were translated and back-translated using gold-standard procedures (page 7, paragraph 1).

All measures were translated into Arabic and back-translated into English (by translators blind to the original version) using gold-standard procedures, and discrepancies resolved by the research team and translators [3].

We have included more detail about the cut-offs used to indicate the presence of individual symptoms and overall disorders (pages 4-5).

The Harvard Trauma Questionnaire [4] was used to assess trauma exposure and PTSD symptoms. Following the procedure of Steel and colleagues[5], we derived subscales to represent different types of trauma, namely detention and abuse, traumatic loss and exposure to conflict. Each subscale represented a count of the
number of types of trauma in each domain experienced by the individual. We also derived dichotomous indicator variables for each PTSD symptom (symptom absent/symptom present). A symptom was considered to be present if the individual rated it as bothering them “quite a bit” (3) or “extremely” (4). The Inventory of Complicated Grief [6] measured symptoms of PGD. This 12-item scale encompasses nine items indexing symptoms proposed for the diagnosis of PGD; and three items relating to duration of symptoms and impairment. Only the nine symptom items were used in this study to quantify the presence and severity of PGD symptoms. Dichotomous indicator variables for each symptom were derived for the present study (symptom absent/present). A symptom was considered to be present if the individual rated it as occurring “sometimes” (3), “often” (4), or “always” (5) or experiencing it as “some” (3), “marked” (4) or “overwhelming” (5).

The Hopkins Symptom Checklist-Depression Subscale [7] was used to measure symptoms of depression. This 15-item subscale provides a continuous measure of symptoms of depression and diagnostic caseness by either applying cut-off score or a DSM-IV-derived algorithm (Mollica et al., 2001). In this study, the DSM-IV derived algorithm was used to represent depression caseness.

5. The second language proficiency scale was used, but no outcomes were reported. Delete?

As detailed above, we reported outcomes related to English proficiency in the results section, and have amended our discussion to include discussion of these results (page 14, paragraph 2).

Statistical analysis:
6. On the level of writing the last 2 sentences of this paragraph start with We also. Please, rewrite.

We have reworded these sentences (page 8, paragraph 3).

We also assessed the association between class membership and symptoms of depression, and calculated the percentage of individuals in each class that met DSM-IV criteria for depression.

Discussion (discretionary revisions):
7. The authors have not done much with regard to discussion of the contextual determinations. This is pity, as they have collected data on important aspects of the refugee experience.

We appreciate Reviewer #1’s comment. We have limited our discussion to the results of the analyses conducted in this study. We agree that there are many other
interesting aspects of the refugee experience that may be pertinent to this discussion; however we believe these are beyond the scope of the study. We have noted this in the limitations (page 15, paragraph 2).

Further, there are several other contextual factors that may impact on symptom profiles that were not examined in this study, for example, culture, religion, relationship to the deceased, whether the individual was internally displaced, displaced to a refugee camp, or held in immigration detention. Further research should investigate the effect of these and other factors on symptom profiles.

8. A sentence describing the concept of bitterness may be added to the text, as bitterness seems to be an important marker of distress.

Following Reviewer #1’s suggestion, we have added a sentence describing bitterness (page 12, paragraph 2).

The finding that bitterness (which can be defined as feeling angry, insulted or let down, and is associated with feelings of revenge and helplessness [8-10]) was highly endorsed in the PGD class in this study is consistent with other research linking PGD and bitterness following exposure to war [8].

9. Loss of cultural traditions may be specified more in the manuscript. Table 2 gives just a hint of what the obstacles may be. Moreover, it is not clear to me whether the authors suggest on page 12 that the loss of cultural traditions lead to more PTSD symptoms? Is this supporting the concept of cultural bereavement?

We appreciate Reviewer #1’s comment on loss of cultural traditions, and have included more information regarding the types of stressors the Mandaeans reported in this domain (page 13, paragraph 2).

Loss of culture and support was associated with membership in the PTSD/PGD and PTSD classes. Many Mandaeans who participated in this study expressed concern over the loss of culture and traditions, with difficulties getting access to appropriate foods and/or places where they could conduct religious ceremonies, as well as being refused permission to perform necessary religious rituals, being examples of salient stressors.

Our results from a previous study suggested that high levels of PTSD symptoms were associated with greater fear of cultural extinction in Mandaeans. We have clarified this in the manuscript (page 13, paragraph 2).

This is consistent with research indicating that fear of cultural extinction was associated with higher levels of PTSD reactions in Mandean refugees [11], who face the real possibility that their culture will cease to exist within generations as a result of systematic persecution and religious dictates forbidding marriage with non-Mandaeans [12].
We agree with Reviewer #1 that these results are consistent with cultural bereavement, and have detailed this in the discussion (page 14, paragraph 1).

This is also consistent with the construct of cultural bereavement which integrates the broader impact of refugee experiences such as trauma exposure and loss of culture with mental health symptoms [13].

10. I would be interested to read more about suggestions that the authors may have with regard to treatment of the PTSD/PGD group. How to tailor interventions adequately? What first or switching between foci as in treatment of prolonged grief? What are priorities of participants with regard to suffering and treatment expectations? I am aware of the fact that this is not the main focus of the study, but adding some more specific thoughts about implications of the outcomes for treatment would add quality to the manuscript.

We appreciate Reviewer #1’s suggestion regarding the inclusion of treatment implications in this manuscript. We believe that the data in this study do not allow us to draw conclusions regarding how interventions should be tailored to survivors of different types of events, or patient priorities in treatment. We have included a brief discussion regarding the need for further research investigating the treatment or prolonged grief symptoms (both alone and with PTSD symptoms) in refugees (page 16, paragraph 2).

While there is a growing body of evidence supporting the use of trauma-focused interventions for the treatment of posttraumatic stress responses in refugees [14], there is an urgent need for further research investigating the treatment of prolonged grief symptoms (both in alone and in combination with PTSD symptoms) in refugees dually exposed to trauma and loss.

Limitations:
11. Authors may consider to discuss other contextual determinations that they have not researched, and which may impact the study’s outcomes.

We agree with Reviewer #1 that there are several other factors that were not investigated in this study that may impact on symptom profiles, and we have noted this in the limitations section (page 15, paragraph 2).

Further, there are several other contextual factors that may impact on symptom profiles that were not examined in this study, for example, culture, religion, relationship to the deceased, whether the individual was internally displaced, displaced to a refugee camp, or held in immigration detention. Further research should investigate the effect of these and other factors on symptom profiles.

12. Limitations as of the instruments used should be added to this section. For example, HTQ was originally developed for the Far-East Asian population, and used here with Mandeans.
We agree that this is a limitation of this study and have noted this in the limitations section (page 15, paragraph 2).

Instruments used in this study were not specifically developed for or validated with Mandaean refugees; for example, the Inventory of Complicated Grief was originally developed in North America [15], and the HTQ and HSCL were developed/adapted for use with refugees from South East Asia [4, 7]. However, these measures have strong psychometric properties and have been used across multiple cultures, including with groups from the Middle East [16-18].

Tables and figures:
13. Since I have suggested some changes to the text that may make it longer, the authors may consider leaving out Figure 1 as I find it pretty much unreadable and not adding significantly to the study’s presentation.

We have retained the Figure in this version of the manuscript, but are happy to omit it if the Editor would like us to do so.

Reviewer #2
Methods:
1. Page 6: Instrument: blind back-translation? Validation of the questionnaires? If not, this needs to be included into the limitations. If it was done, it needs to be included in the methods.

We have included information regarding translation and back-translation in the Methods (page 7, paragraph 1), and noted that the measures were not specifically validated with the Mandaean community in the Limitations section (page 15, paragraph 2).

All measures were translated into Arabic and back-translated into English (by translators blind to the original version) using gold-standard procedures, and discrepancies resolved by the research team and translators [3].

Instruments used in this study were not specifically developed for or validated with Mandaean refugees; for example, the Inventory of Complicated Grief was originally developed in North America [15], and the HTQ and HSCL were developed/adapted for use with refugees from South East Asia [4, 7]. However, these measures have strong psychometric properties and have been used across multiple cultures, including with groups from the Middle East [16-18].

2. Measures: definition of all the presented scales but at least the range of the symptom-score and of the event-score (how many trauma exposure items?) How long did the interviews take? Where were they done? On the phone/in person? Did you administer all instruments as interview? How did you contact the participants? How many refused and how many you were not able to contact?
We appreciate Reviewer #1’s suggestion to add more detail to the Methods section. We have included information regarding ranges of symptom scores and event scores (pages 4-5).

The Harvard Trauma Questionnaire [4] was used to assess trauma exposure and PTSD symptoms. The trauma exposure sub-scale encompasses 16 types of traumatic events, while the PTSD sub-scale indexes 16 PTSD symptoms. Following the procedure of Steel and colleagues[5], we derived subscales to represent different types of trauma, namely detention and abuse, traumatic loss and exposure to conflict. Each subscale represented a count of the number of types of trauma in each domain experienced by the individual. We also derived dichotomous indicator variables for each PTSD symptom (symptom absent/symptom present). A symptom was considered to be present if the individual rated it as bothering them “quite a bit” (3) or “extremely” (4).

The Hopkins Symptom Checklist-Depression Subscale [7] was used to measure symptoms of depression. This 15-item subscale provides a continuous measure of symptoms of depression (with a range from 0 to 60) and diagnostic caseness by either applying cut-off score or a DSM-IV-derived algorithm (Mollica et al., 2001). In this study, the DSM-IV derived algorithm was used to represent depression caseness.

We have also added more detail to the Procedure section, detailing the length of the interviews, where and how they were conducted, how instruments were administered, how participants were contacted, and refusal/ non-contact rates (pages 6-7).

No census data was available for the Mandaeans in Sydney when this study was conducted, however information was derived from multiple sources (community leaders, community members, and service providers) to suggest that there were approximately 600 Arabic-speaking adult Mandaeans residing in Sydney at the time of this study. Community leaders provided lists of potential participants, which numbered 367 adults. One of three bilingual (Arabic and English-speaking) Mandaean research assistants invited potential participants to take part in this study by telephone. Fifty-two persons declined to participate, resulting in a sample of 315 Mandaeans. 248 individuals reported that they had lost a loved one, and were included in the current study. This represents a response rate of 86% and an estimated coverage of adult Mandaeans in Sydney of 53%.

The three research assistants administered the interviews in this study in the participants’ homes. These research assistants received two days of training on the administration of mental health measures, and received weekly supervision from Dr. Nickerson. Participants were provided with $AUD50 payment. All measures were translated into Arabic and back-translated into English (by translators blind to the original version) using gold-standard procedures, and discrepancies resolved by the research team and translators [3]. After the nature of the study was explained, written informed consent was obtained for all participants. All measures were administered in interview form, with the
interviews lasting between 45 minutes and 75 minutes. This study had ethical approval from the University of New South Wales Research Ethics Committee. Data was collected between September 2006 and November 2007.

3. What was the qualification of the research assistants? Did they have training/experience to administer the interview and on the clinical concepts?

We have amended this information following the comments from Reviewer #2. The research assistants were Mandaean community members who received two days of training on administration of study measures, and received weekly supervision from Dr. Nickerson (page 6, paragraph 4).

These research assistants received two days of training on the administration of mental health measures, and received weekly supervision from Dr. Nickerson.

4. What inclusion criteria did you use for the PTSD and PGD group: score (cut-off) or the diagnosis (according to DSM or ICD)?

Group membership was empirically derived using Latent Class Analysis (see page x, paragraph 1). Accordingly, individuals were not assigned to a group on the basis of a particular cut-off. Instead, the presence or absence of PTSD and PGD symptoms were used to identify patterns of response and assign individuals to groups (page 7, paragraph 2).

LCA was used to model PTSD and PGD symptom profiles, using Mplus v.6 [19]. LCA uses binary indicators to identify patterns of responses, assigning individuals to classes on the basis of these patterns. We identified latent classes on the basis of dichotomous indicators of PTSD and PGD symptoms.

5. Are the concepts “loss of culture and support” and “adaptation” distinct concepts – are they validated? As you use it as argument for the distinctiveness between the concepts of PGD and PTSD information about the concepts and the validity should be given.

We used domains of trauma exposure and post-migration living difficulties developed by Steel and colleagues (1999) on a sample of asylum seekers, refugees, and immigrants. Steel et al used principal components of analyses to empirically derive domains of trauma and living difficulties from the Harvard Trauma Questionnaire and the Living Difficulties checklist. Following the procedure of Steel et al (1999), we created counts of each type of traumatic event in each of these domains to use as predictors in the LCA analyses. Further detail has been added to the manuscript to clarify this process (pages 4-5).

The Harvard Trauma Questionnaire [4] was used to assess trauma exposure and PTSD symptoms. The trauma exposure sub-scale encompasses 16 types of traumatic events, while the PTSD sub-scale indexes 16 PTSD symptoms. We used categories of traumatic experiences that were empirically derived by Steel and colleagues [5] with a sample of refugees, asylum-seekers and migrants.
These encompassed namely detention and abuse, traumatic loss and exposure to conflict. Each subscale represented a count of the number of types of trauma in each domain experienced by the individual.

Post Migration Living Difficulties Checklist [5, 20] was used to assess daily living difficulties. This 19-item scale examines the extent to which post-migration challenges had been of concern over the past twelve months. Items scored as “a serious problem” or “a very serious problem” were considered positive responses. We used categories of post-migration living difficulties experiences that were empirically derived by Steel and colleagues [5] with a sample of refugees, asylum-seekers and migrants. These encompassed adaptation difficulties, threat to family, residency determination difficulties, health, welfare and asylum difficulties and loss of culture and support. The score on each subscale was represented by a count of items scored as positive in the pertinent domain.

Data analysis:
6. I think it would be essential to do the statistical analysis in a way not only to demonstrate a distinct pattern from PTSD but also to include the distinction of PGD and MD (and anxiety disorders) as data in the past have been highly controversial; e.g. (Boelen & Prigerson, 2007; Boelen & van den Bout; 2005; Bonanno et al., 2007; Hogan, Worden, & Schmidt, 2004; Kim & Jacobs, 1991; Mehlem et al., 2004; Melhem et al., 2007; Momartin et al., 2004). Further you have extremely high comorbidity. Especially Schaal, 2010 showed the almost complete overlap between diagnostic symptom clusters.

The controversy of the mixed previous findings about the PGD concept is missing completely e.g. Schaal 2010, Boelen & Prigerson, 2007; Boelen & van den Bout; 2005; Boelen, van den Bout & de Keijser, 2003; Boelen & van den Bout; 2005; Chen, Bierhals, Prigerson, Kasl, Mazure, & Jacobs, 1999; Prigerson et al., 1996) (Pivar & Field, 2004). To evaluate the clinical relevance of the concept of PGD it would be essential to distinguish it from depression (as well as anxiety) – I think it is impossible to state the clinical relevance as the comparison to other similar (perhaps identical?) clinical concepts is missing.

We respectfully disagree with Reviewer #2 that it is necessary to distinguish PGD from depression in order to evaluate the clinical relevance of the PGD concept. There have been multiple studies that have suggested that PGD is distinct from depression (Boelen et al., 2003; Bonanno et al., 2007, Morina et al., 2010; Shear et al., 2006). While we agree with Reviewer #2 that it would be of interest to examine the symptom profiles that emerge when considering PTSD, PGD and depression concurrently. However, there is inadequate power in the current sample to do this. Undertaking this analysis would require the addition of 16 additional indicator variables to the LCA models, which would render the models unlikely to converge.
We have discussed this issue in the limitations section of the discussion (page 15, paragraph 2).

Further, while it would be informative to consider the symptom profiles that emerge when including depression reactions in the LCA model, our sample sizes precluded this extended analysis.

7. In the regression analysis you further show that the trauma exposure is the best (and significant) predictor for all your 3 clinical classes – what is the indication for a different clinical intervention?

As noted above, we believe that it is not possible to extrapolate from these results to make assertions as to the optimal treatment for individuals in different symptom classes. However, we have included a brief discussion regarding the need for further research investigating the treatment or prolonged grief symptoms (both alone and with PTSD symptoms) in refugees (page 16, paragraph 2).

While there is a growing body of evidence supporting the use of trauma-focused interventions for the treatment of posttraumatic stress responses in refugees [14], there is an urgent need for further research investigating the treatment of prolonged grief symptoms (both in alone and in combination with PTSD symptoms) in refugees dually exposed to trauma and loss.

Minor Essential Revisions:
Discussion:
8. What is your explanation, that traumatic loss is a predictor for PTSD/PGD but not for PGD? There was more research that needs to be included.

Reviewer #2 has raised an interesting point – namely why “traumatic loss” was associated with membership in the combined PGD/PTSD class, but not the PGD class. All individuals in this sample have been exposed to the loss of a loved one. These findings indicate that there is something unique about being exposed to loss and trauma in the same event (as detailed above), which has an especially strong impact on mental health – and results in both fear/anxiety related symptoms (i.e., PTSD symptoms) and grief-related symptoms. Thus, it seems that the “traumatic” nature of the loss is what differentiates membership in the PGD only and PTSD/PGD classes. We have expanded our discussion of this finding in the discussion (page 13, paragraph 1).

In contrast, high levels of exposure to traumatic loss were associated only with membership in the combined PTSD/PGD class relative to the resilient class. This indicates that events characterized by both trauma and loss contribute uniquely to a psychological profile that encompasses both PTSD and PGD symptoms. This is consistent with Neria and Litz’s assertion that concurrent exposure to trauma and loss creates a “dual emotional burden” [21]. The combination of traumatic and loss-related aspects of this experience may yield both fear-related symptoms (i.e., PTSD symptoms) and grief reactions. It is notable that traumatic
loss did not predict membership in the PGD only class. As all individuals in the current sample had been exposed to the loss of a loved one, it may that it was the “traumatic” nature of these losses (e.g., witnessing the murder death of a loved one) that specifically contributed to membership in the combined PTSD/PGD classes. Thus, experiencing a traumatic event and a loss concurrently appears to have an especially deleterious impact on the mental health of the trauma survivor, leading to high probability of membership in the PTSD/PGD class.

9. Why is age so important as predictor for clinical problems? Older = more traumatic events? Or is there no flexibility for adaptation in the new culture?

The finding that age had a positive association with class membership in this study is somewhat surprising, as several prior studies have indicated that younger refugees tend to report higher levels of psychological symptoms (e.g., Hauff & Vaglum, 1995; Steel et al., 1999). As the reviewer suggested, it may be the case that, in this sample, older refugees had been exposed to more traumatic events; and thus exhibited higher levels of psychopathology. We have noted this in the discussion (page 14, paragraph 2).

It is also interesting to note that older age significantly predicted membership in the PTSD only and PGD only classes, and marginally significantly predicted membership in the combined PTSD/PGD classes. This is in contrast to prior research which has suggested that younger refugees tend to report higher levels of psychological symptoms [5, 22]. One possibility is that, in this sample, older refugees had been exposed to more traumatic events, and accordingly were more likely to be in the symptomatic classes.

10. I am very surprised that asylum status as well as socioeconomic status are not relevant in your study for mental health status. There are other findings in the literature.

We agree with Reviewer #2 that it is somewhat surprising that difficulties related to the asylum process did not predict group membership in this study. One possible explanation for this is that, at the time of this study, all participants had obtained permanent visa status in Australia. Thus, the acute impact of mental health problems related to insecure visa status would not be observed in the results. We have noted this in the discussion (page 15, paragraph 1)

Finally, it was somewhat surprising to note that difficulties related to the asylum process did not predict group membership in this study considering the body of research indicating that asylum-related factors are strongly related to mental health outcomes [23-25]. One possible explanation for this is that, at the time of this study, all participants had obtained permanent visa status in Australia. This, it may be that the acute impact of mental health problems related to insecure visa status were not observed in the results.
Discretionary Revisions:
11. Page 5: PMLDC: introduction of the abbreviation (only once used in the document)

We have removed the acronym PMLDC from this manuscript.

12. Page 11: missing space before Reference 25 & 9

We have inserted a space before this reference

Reviewer #3
Major revisions:
1. The abstract states that the objective is to determine whether there are distinct classes of PTSD and PGD symptoms. However, the manuscript investigates both symptoms (for example Table 4) and precursors to the symptoms (for example Table 5). I suggest that the abstract and the last part of the introduction clearer state both perspectives.

We appreciate Reviewer #3’s comment regarding clarifying the objectives of this study, and have amended the abstract and introduction accordingly (abstract; page 4, paragraph 2).

Background: While a large proportion of conflict-affected populations have been dually exposed to trauma and loss, there is inadequate research identifying differential symptom profiles related to bereavement and trauma exposure in these groups. The objective of this study was to (1) determine whether there are distinct classes of posttraumatic stress disorder (PTSD) and prolonged grief disorder (PGD) symptoms in bereaved trauma survivors exposed to conflict and persecution, and (2) examine whether particular types of refugee experiences and stressors differentially predict symptom profiles.

We employed latent class analysis (LCA) to investigate whether subpopulations characterized by differential symptom profiles of PTSD and PGD could be identified in a refugee sample exposed to both significant trauma and loss, and whether specific refugee experiences predicted different symptom profiles.

2. The abstract state that “membership in the PTSD/PGD class was predicted by greater trauma exposure and traumatic loss…”. I am a bit unsure what is meant by trauma exposure, as trauma exposure is divided into three parts in the results. Table 5 may actually indicate the opposite, namely that “Exposure to conflict” was not related more to neither the PTSD/PGD nor PTSD class than the resilient class.

We have rectified this error in the abstract to clarify the findings of the study.

Whereas membership in the PTSD/PGD class was predicted by exposure to traumatic loss, those in the PGD class were more likely to have experienced
adaptation difficulties since relocation, and individuals in the PTSD class were more likely to have experienced difficulties related to loss of culture and support.

3. I also miss a discussion in the discussion chapter of why this level of exposure is not related to level of distress. “Detention and abuse” was related to all three classes of membership of symptoms, thus did not distinguish between classes. The third type of exposure, “Traumatic Loss” was related to combined finding in the discussion chapter. If there were any part of the exposure one would imagine was highly related to grief, it would be traumatic loss. Is this lack of finding due to the dichotomizing of the exposure variables (see comment below)?

As detailed above, in response to Reviewer #2,’s comment, we have expanded our discussion of the findings related to Traumatic Loss in the discussion (page 13, paragraph 1).

In contrast, high levels of exposure to traumatic loss were associated only with membership in the combined PTSD/PGD class relative to the resilient class. This indicates that events characterized by both trauma and loss contribute uniquely to a psychological profile that encompasses both PTSD and PGD symptoms. This is consistent with Neria and Litz’s assertion that concurrent exposure to trauma and loss creates a “dual emotional burden” [21]. The combination of traumatic and loss-related aspects of this experience may yield both fear-related symptoms (i.e., PTSD symptoms) and grief reactions. It is notable that traumatic loss did not predict membership in the PGD only class. As all individuals in the current sample had been exposed to the loss of a loved one, it may that it was the “traumatic” nature of these losses (e.g., witnessing the murder death of a loved one) that specifically contributed to membership in the combined PTSD/PGD classes. Thus, experiencing a traumatic event and a loss concurrently appears to have an especially deleterious impact on the mental health of the trauma survivor, leading to high probability of membership in the PTSD/PGD class.

4. In the second chapter of the introduction, the earlier grouping of PTSD into pervasive, moderate and none are theorized to maybe “generalize to conflict and persecution-exposed groups...”. I suggest that it is made clearer that the widest generalization here is from only PTSD to bereaved groups and thus to both PTSD and grief.

We have clarified this statement (page 3, paragraph 2).

It may be that these findings (derived from research with trauma-exposed individuals) generalize to conflict and persecution-exposed groups (who are typically exposed to both trauma and loss), such that symptom profiles in these groups are characterized by high, moderate or no disturbance across both PTSD and PGD symptoms.
5. It is a bit unclear how the Hopkins depression subscale was scored. Did you use a continuous sum score, cut-off score or caseness by DSM-IV derived algorithm? I have problems interpreting the OR figures as compared to the frequencies of depression in the last chapter in the results. Is the odds ratios really as high as 340 etc?

We have clarified the use of the HSCL in the analyses (page 8, paragraph 1).

We also assessed the association between class membership and symptoms of depression (using the continuous measure of depression symptoms derived from the HSCL), and calculated the percentage of individuals in each class that met DSM-IV criteria for depression (using the DSM-IV-derived algorithm to determine caseness from the HSCL).

The odds ratios reported in relation to depression are indeed very high. We believe that this reflects the strong relationship between membership in the symptomatic classes (particularly the PTSD/PGD classes) and depression symptoms. We have included 95% confidence intervals surrounding the odds ratios to assist interpretation.

6. Why was the Post migration living difficulties checklist dichotomized? I can understand that it is easier to present the descriptive data when dichotomized, but I am unsure if this is a good choice for the multiple regression model (Table 5). You remove variability and thus power. I am also uncertain if the living difficulties variables in Table 5 are normally distributed after you have dichotomized the sub variables. For example the variables of Residency determination difficulties and Threat to family are constructed of three sub variables and thus only have three possible response alternatives after dichotomizing the sub variables. Would it not be better statistic to keep the full variability of the sub variables and make sum variables to enter the multiple regression?

We appreciate Reviewer #3’s suggestion. We dichotomized the items on the PMLDC as this scale was originally designed to create a “count” variable of the number of living difficulties a refugee or asylum seeker is exposed to. Following Reviewer #3’s comment, we re-coded the sub-variables so that they reflected the continuous nature of the original responses. We then conducted the LCA and found an identical pattern of results. We have retained the original analyses, reflecting the typical use of the PMLDC as a checklist of stressors (and keeping them consistent with the count variable used for trauma exposure), however would be happy to change the results to reflect continuous variables if that would be preferred by the editor.

7. The method chapter also indicates that the exposure and PTSD symptoms were dichotomized in a similar manner. The Harvard trauma questionnaire includes several response alternatives, and some of the presented subscales are made out of few sub variables. Thus, similar problems as mentioned above for the Post migration living difficulties checklist apply for exposure and PTSD symptoms.
We appreciate Reviewer #3’s comment regarding the dichotomizing of variables in this analysis. In relation to trauma exposure, there was only two potential responses in relation to each trauma event (i.e., experienced/witnessed or did not experience/witness), and thus it was necessary to use counts of dichotomized items to construct the sub-scales relating to “detention and abuse, traumatic loss, and exposure to conflict”.

In relation to PTSD symptoms, we employed Latent Class Analysis in the current study, which requires that dichotomized indicator variables be used. There is the statistical alternative of using Latent Profile Analysis (which uses continuous indicator variables). When re-running the analyses using Latent Profile Analysis, we found a nearly identical set of results. As results from Latent Class Analysis are easier to interpret (i.e., probability of item endorsement represents the probability that an individual reports a particular symptom), we retained the Latent Class Analyses in this manuscript.

8. *I suggest that the response alternatives and range of possible results for each subscale is presented in the method chapter.*

As suggested by Reviewer #3, we have included the range of possible results for each of the subscales in the methods (pages 4-5).

The Harvard Trauma Questionnaire [4] was used to assess trauma exposure and PTSD symptoms. The trauma exposure sub-scale encompasses 16 types of traumatic events, while the PTSD sub-scale indexes 16 PTSD symptoms. We used categories of traumatic experiences that were empirically derived by Steel and colleagues [5] with a sample of refugees, asylum-seekers and migrants. Each subscale represented a count of the number of types of trauma in each domain experienced by the individual. Subscales encompassed detention and abuse (range = 0 to 8), traumatic loss (range = 0 to 3) and exposure to conflict (range = 0 to 5).

Post Migration Living Difficulties Checklist [5, 20] was used to assess daily living difficulties. This 19-item scale examines the extent to which post-migration challenges had been of concern over the past twelve months. Items scored as “a serious problem” or “a very serious problem” were considered positive responses. We used categories of post-migration living difficulties experiences that were empirically derived by Steel and colleagues [5] with a sample of refugees, asylum-seekers and migrants. These encompassed adaptation difficulties (range = 0 to 7), threat to family (range = 0 to 2), residency determination difficulties (range = 0 to 3), health, welfare and asylum difficulties (range = 0 to 4) and loss of culture and support (range = 0 to 7).

9. *In the fourth paragraph of the discussion, the importance of culture for grief reactions is discussed. In the seventh chapter, the relation between “Loss of culture and support” and PTSD are discussed. I miss a link between these two discussions,*
and a discussion of why “Loss of culture and support” were not found to be related to grief (PGD group).

We agree with Reviewer #3, and have addressed this omission (page 14, paragraph 1).

It is somewhat surprising that loss of culture and support did not predict membership in the PGD only class, considering the strong documented relationship between PGD and lack of social support [26, 27]

Minor issues not for publication:
10. The beginning of the second chapter of the introduction seems to have a smaller font size than the rest of the manuscript. 2.

We have rectified the font size in the introduction.

11. In the second to last paragraph before the conclusions, a sentence miss “are” or “were”: “…so were unable to examine the extent to which these XXX related to class membership”.

We have rephrased these sentences.

12. The last paragraph before the conclusion, a sentence miss “than”: “… interventions tailored to the patient’s specific needs may be more effective XXX that universal treatments…”.

We have rephrased this sentence.

Once again, we thank the Reviewers for their comments and hope that this manuscript is now suitable for publication in BMC Psychiatry.

Yours sincerely,

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References


