Author's response to reviews

Title: Risk factors for mental disorders in women survivors of human trafficking: a historical cohort study

Authors:

Melanie Abas (melanie.abas@kcl.ac.uk)
Nicolae V Ostrovschi (n.ostrovschi@googlemail.com)
Martin Prince (martin.prince@kcl.ac.uk)
Viorel I Gorceag (gorceag@unfpa.org)
Carolina Trigub (carolinatrigub@gmail.com)
Sian Oram (sian.oram@kcl.ac.uk)

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Author's response to reviews: see over
Dear Mr. Carlo Rye Chua,

Re: MS:1642894083866192 (Risk factors for mental disorders in women survivors of human trafficking: a historical cohort study Melanie Abas, Nicolae V Ostrovschi, Martin Prince, Viorel I Gorceag, Carolina Trigub and Sian Oram)

Thank you for the opportunity to revise and resubmit the above manuscript. We have revised the manuscript in line with the reviewers’ comments, as detailed below. Page numbers correspond to the revised manuscript with changes accepted.

**Reviewer #1**

ABSTRACT

1. [Background] Please provide more background about what is known about mental health disorders among trafficked women for unfamiliar readers.

Response: We have revised this section as recommended:

“Background: Previous studies have found high levels of symptoms of depression, anxiety, and post-traumatic stress disorder among women survivors of human trafficking. No previous research has described risk factors for diagnosed mental disorders in this population.”

2. [Methods] (a) The sentence “the foremost international organisation….” Seems not as relevant to the methods as, e.g., the definition of mental disorders used in the study, the recruitment strategy, information on interviewer training, and the pre-and post-trafficking factors the study controlled for. (b) Also, mention that you look at long-term mental health disorders (average 6 months after return).

Response: We have revised this section as recommended:

“Methods: A historical cohort study of women survivors of trafficked women aged 18 and over who returned to Moldova and registered for assistance with the International Organisation for Migration (IOM). Women were approached by IOM social workers and, if they gave informed consented to participate in the study, interviewed by the research team. At 2-12 months post-return to Moldova, a psychiatrist assessed DSM-IV mental disorders blind to information about women’s pre-trafficking and post-trafficking experiences using the Structured Clinical
Interview for DSM-IV (SCID). Analyses of risk factors for DSM-IV mental disorders controlled for pre-trafficking factors (e.g. education status, employment status, childhood abuse), trafficking factors (e.g. type and duration of exploitation) and post-trafficking factors (e.g. marital status, employment status, social support, unmet needs)."

3. [Results] (a) Countries of destination are only reported in the abstract, not in the results section. The information on ‘elsewhere countries are too detailed for the abstract…..rather; discuss them in the results section, where this information is missing. (b) Please clarify how many of the women who had PTSD also had anxiety disorders, or not, as was done in the results section.

Response: We agree that the information on countries of destination is not required in the abstract; this information has now been removed from the abstract and is reported instead in the Results section of the main manuscript (page 12):

“As shown in Table 1, the women in our sample ranged from age 18 to 44 years (mean 25.4, SD 6.0). Women had been trafficked to Turkey (39.7%), Russia (27.5%), the European Union (11.6%) and elsewhere (21.2%), including Bosnia and Herzegovina, Croatia, Israel, Kosovo, Serbia, Ukraine, and the United Arab Emirates.”

We report the prevalence of any disorder at an average of 6 months post-return and the primary diagnoses (depression, PTSD, and other anxiety disorders). Information on co-morbid disorders is provided in the main manuscript in the Results (page 13) and in Table 2: we believe that the breakdown of co-morbid disorders is too detailed for the abstract.

4. [Conclusion] You might want to state the need to consider including pre- and post-trafficking factors into therapies offered to trafficking survivors in the first place before testing therapies that do this. If therapies like this exist already, it might be worth stating.

Response: Our findings indicate that therapies for the treatment of mental disorders may be more effective if take into account chronic trauma (including childhood abuse) and post-trafficking needs. We have rewritten the Conclusion section of the Abstract (page 2), which now reads as follows:

“Conclusions: Assessment for mental disorders should be part of re-integration follow-up care for women survivors of human trafficking. Mental disorders at that time, most commonly PTSD and depression, are likely to be influenced by a range of predisposing, precipitating and maintaining factors. Care plans for survivors of trafficking must be based on individual needs, and must apply clinical guidelines for the treatment of PTSD and of depression. Evidence is needed on the effectiveness of therapy for PTSD in survivors of human trafficking.”

BACKGROUND
5. Please add a sentence between the first two and the third sentence to make clear why this article only focuses on trafficked women, as trafficked men are also exposed to severe trauma, etc.

**Response:** Thank you for this point. We agree that trafficked men may also experience severe traumas, and have amended the Background (page 4) to acknowledge this:

The global number of trafficked persons at any time is estimated to be 2.5 million.[2] Trafficked women and men are commonly exposed to severe trauma characterised by physical and sexual violence and threats while trafficked, [5-8] and among those trafficked for sexual exploitation there is a high risk of HIV infection.[8-11]

Trafficked men were excluded from this study because the IOM programme is funded to provide post-trafficking care for women and children only. We now state this in the Methods section (page 6):

6. Please give examples about what is known about mental health disorders among trafficked women, even if the evidence is limited. Please also include information of your previous study on mental health disorders among the same sample of trafficked women and explain the new evidence this study provides in respect to your previous publications.

**Response:** Thank you for highlighting the need to provide more information on this point. We have amended the Background (page 4) as recommended:

“Evidence on the nature of psychological disorders among survivors of human trafficking is, however, very limited.[8] Previous studies have reported high levels of symptoms of depression, anxiety and post-traumatic stress disorder (PTSD) among women survivors of human trafficking, but have been hampered by using screening scales rather than a diagnostic instrument,[7, 12, 13] by including women at different stages of trafficking, and by combining populations from different ethnicities, limiting internal validity.[7] No previous research has described risk factors for diagnosed mental disorder among women survivors of human trafficking.

The present study addresses this gap by assessing a consecutive sample of ethnic Moldovan women survivors of human trafficking assisted on return to Moldova using a diagnostic instrument to measure mental disorder.[14] We previously reported that 54% of this sample met diagnostic criteria for mental disorder at an average of 6 months post-return to Moldova.[15]”

7. “No previous research has described risk factors for diagnosed mental disorder in a sample of trafficked women”. I recommend putting this sentence at the end of the paragraph.

**Response:** We have moved the sentence to the end of the first paragraph as recommended (see response to previous point).
8. The background should include a theoretical framework on which the hypotheses are based to understand why childhood abuse and unmet social needs after the trafficking experience are predicted to influence women’s mental health approximately 6 months post-trafficking.

**Response:** Previous research with war-affected and traumatised populations have suggested that childhood abuse, unmet needs, and poor social support may be risk factors for depression and post-traumatic stress disorder. We have now rephrased the sentence to clarify that we have drawn upon this literature in formulating our hypotheses (page 4):

Given work in other trauma contexts we were particularly interested to consider abuse prior to trafficking and on post-trauma social stressors and social support as potential risk factors for diagnosed mental disorders in women survivors of human trafficking.[14, 16-18]

9. You should also include a statement why no information is included on the trafficking experience itself and the difference it might have made to have this information available, especially since duration of trafficking is significantly associated with mental health. Actually, given that duration of trafficking is used as a proxy for trafficking experience, as stated in the results, you might not want to say that you focused solely on the pre and post trafficking experiences. Also you looked at country of destination as well.

**Response:** We agree that these are important points, and added a discussion of them to the Methods and Discussions sections of the manuscript.

In the Methods section of the manuscript (page 7), we state what information was collected about trafficking experiences and now provide more detail on why additional data were not collected:

“Following discussions with IOM it was considered that women may be distressed by recounting their trafficking experiences, including with regards to how they had been trafficked, threats to themselves and others, witnessing and experiencing physical and sexual violence, sustaining injuries, and leaving the trafficking situation. As the primary aim of the study was to describe the mental health status of women survivors of human trafficking, we therefore chose not to ask about the trafficking experience itself. Instead, we made use of existing data on the duration and type of exploitation and the country to which women had been trafficked which had been collected by IOM during APP registration. Researchers were, however, trained to listen sensitively and non-judgmentally to women if they chose to disclose information about their experiences while trafficked, to emphasize that they were not to blame, and encourage them to speak with their support worker.”

In the Discussion section of the manuscript [page 18] we have expanded on the limitation of the lack of information about women’s experiences while trafficked:

“Our analysis was also limited by the lack of data on women’s psychological processes during the trauma and minimal data on women’s experiences during the
trafficking situation, which would have allowed us to model the role of trauma-related factors."

METHODS

10. Were the interviews conducted throughout 2008 or just for a few months?

Interviews were conducted between February and December 2008. We have now amended the text (page X) to state this:

“Survey interviews were conducted between February 2008 and December 2008 with a consecutive sample of Moldovan women survivors of human trafficking.”

11. Clarify if the 80% of trafficked women who are referred to the programme are 80% of all trafficked women or 80% of those assisted by the IOM.

80% of women survivors of human trafficking who are assisted to return to Moldova by IOM accept support from the APP programme. We now state this more clearly in the text:

“Approximately 80% of women survivors of human trafficking who return to Moldova with assistance from the IOM access the APP programme; between 2000 and 2008 the IOM supported 2,340 women survivors of human trafficking who returned to Moldova.”

As stated in the Discussion, there are no data on the number of women who return outside the IOM programme. However, the IOM programme is the only official programme assisting women survivors of human trafficking to return to Moldova and so any woman survivor of human trafficking assisted to return to Moldova would be known to IOM.

12. Please give information on the training of the interviewer.

Response: We have added the following information to the manuscript (Methods, page 5):

“Survey interviews were conducted by two female interviewers who had experience of working with women survivors of human trafficking at IOM and had an undergraduate background in psychology. Interviewers received 6 days training in how to conduct the interview and assessments; sensitive and ethical issues; Moldova’s legal framework for responding to human trafficking; and women survivors’ rights of confidentiality, protection assistance and rehabilitation. Training included seminars, 2 days of simulated interviews, and 8 pilot interviews per interviewer.”

13. Please discuss if the fact that an IOM social worker approached women about the participation pressured women to participate in the survey, given that they were receiving or had received services from IOM.

Response: While we cannot be certain that women did not feel under pressure to participate in the survey, the IOM and the research team were careful to emphasise the voluntary nature of participation and to explain that women’s support would not be affected by their
decision to participate or not participate in the study. We now state this in the Methods section (page 6):

“An IOM social worker approached women first and informed them of the study aims and subject matter, and emphasised the voluntary nature of participation and explained to women that their support would be in no way affected by their decision to participate, or not participate in the study.”

14. Were women reimbursed for their travel and participation in the study?

Response: We have added the following information to the manuscript (Methods, page 6):

“In most cases women chose to be interviewed when they attended the IOM Rehabilitation centre for their monthly review with their social worker. Travel expenses were reimbursed for women who chose to be interviewed at other times; there was no payment for participation in the study.”

15. Please provide information on how women were followed up for the research, what communication methods were used, and how safety was ensured.

Response: Women were initially approached by an IOM social worker, who informed them of the study aims and subject matter. Women who consented to be approached by the research team were then contacted by the interviewers. When approaching a potential participant, the interviewers first introduced themselves, showing an identification card, and explained the study aims and subject matter and that the study was being carried out by the Medical University from Chisinau and IOM Moldova with approval from the University Ethical Committee. Women could choose whether they preferred to be interviewed at the IOM Rehabilitation Centre or elsewhere. If interviews were conducted in the community, the research team went out in teams of two for security. We have amended the relevant section of the manuscript (Methods, page 6) to read:

“An IOM social worker approached women first and informed them of the study aims and subject matter, and emphasised the voluntary nature of participation and explained to women that their support would be in no way affected by their decision to participate, or not participate in the study. Women who consented to be approached by the research team were then contacted by the interviewers. When approaching a potential participant, the interviewers first introduced themselves and showed an identification card, and then explained the study aims, the subject matter, and the organizations involved. Women giving informed consent to participate were interviewed by the researcher at the IOM Rehabilitation Centre or another place of their choosing. In most cases women chose to be interviewed when they attended the IOM Rehabilitation centre for their monthly review with their social worker. Travel expenses were reimbursed for women who chose to be interviewed at other; there was no payment for participation in the study. For safety reasons, interviewers worked in teams of two if interviews were conducted in the community.”
16. Please provide information on why women were not asked about their trafficking experience itself.

**Response:** As detailed above, women were not asked about their trafficking experiences because, after discussion with IOM, it was considered that this may lead to distress. Data on the duration and type of exploitation and the country to which women had been trafficked are collected by the IOM during women’s registration with the APP programme; these data were shared with the research team. We now explain this on pages 7 and 9 of the manuscript.

17. Please provide information on the sexual abuse items.

**Response:** We now give details of the questions used to ask about sexual abuse (page 8):

“The questionnaire also included two items about sexual abuse: “before the age of 17, or before you were trafficked, did an adult or older child (i) touch you in a sexual way; (ii) force you to have any type of sexual intercourse?”” If women were trafficked before the age of 17, they were asked if they had experienced abuse prior to being trafficked.

18. Please give an explanation why mental disorders were not considered separately but jointly.

**Response:** Thank you for highlighting the need to explain this point. We now state on page 11 of the manuscript that:

“Analyses used SCID-diagnosed DSM-IV mental disorder as the dependent variable of interest; the study was not adequately powered to conduct analyses by type of DSM-IV mental disorder.”

19. What do you mean with “represented elsewhere in the dataset”

**Response:** By “represented elsewhere in the dataset we mean that items from the CANSAS-SF were rated/scored in another part of the questionnaire. For example, mental health and social support were assessed by single items on the CANSAS-SF and by more detailed assessments (the SCID and the Duke Functional Social Support Questionnaire, respectively). The mental health and social support items of the CANSAS-SF were therefore dropped for the purposes of the presented analysis. We have amended the text to clarify this point (page 10):

“Items on mental health or social support were dropped for the purposes of the presented analysis as they were rated elsewhere in the questionnaire (by the Structured Clinical Interview for DSM–IV Axis I Disorders and the Duke Functional Social Support Questionnaire, respectively).”

20. Why did you not control for residence prior to trafficking when examining the association between (i) mental disorder and childhood abuse and (ii) unmet needs and social support, as this was also significant in bivariate analysis.
Response: In step 2 of our analysis, we tested our hypotheses for the association between (i) mental disorder and childhood abuse and (ii) unmet needs and social support. As stated on page 5 of the manuscript, when formulating these hypotheses we pre-specified the variables we would control for during analysis: residence was not one of the pre-specified variables.

In step 3 of our analysis – a regression analysis of predictors of mental disorder at an average of 6 months post-return among women survivors of trafficking – we entered into the backwards stepwise regression models all exposure variables which had showed a bivariate association with mental disorder, including residence prior to trafficking.

21.
   a. Please clarify the difference in the analysis described in paragraph 2 and 3 of the analysis section, as both analyses calculated OR and AOR.

Response: Thank you for highlighting the need to clarify our description of the statistical analysis. We have now amended the text to describe the analysis process more clearly (page 11-12).

“In the second stage of analysis, and to test our hypotheses, we used logistic regression to calculate adjusted odds ratios describing the relationship between DSM-IV mental disorder and (a) emotional, physical and sexual childhood abuse (adjusting for socio-economic position); and (b) unmet needs and social support score (adjusting for baseline mental disorder measured immediately after return to Moldova). Education level and pre-trafficking employment status were used as proxy variables when controlling for socio-economic position; due to small cell counts, these variables were recoded as binary variables during regression analyses. Fisher exact tests using these binary variables showed that their association with mental disorder was of comparable statistical significance to that of the original categorical variables. Finally, all pre-trafficking, trafficking, and post-trafficking variables which showed an association with mental disorder in bivariate analyses (p<0.1) were entered into a backwards stepwise regression model. Backwards stepwise logistic regression was used because of the exploratory nature of the analysis and also because high levels of collinearity within the dataset precluded the creation of a model that included all relevant variables. All analyses were conducted using STATA 11.[32]"

We have also added a footnote to Table 5, listing the variables that were entered into the backwards stepwise regression model:

“* The following exposure variables showed a bivariate association with mental disorder (assessed at an average of 6 months post-return) and were entered into the backwards stepwise regression model: education status, pre-trafficking employment status, urban/rural residence, childhood emotional abuse, childhood physical abuse, childhood sexual abuse, duration of exploitation, post-trafficking employment status, number of unmet needs, and social support score. Exposure variables were retained
in the model if the covariate showed an association (p<0.1) with mental disorder measured at 6 months post-return.”

b. Please specify what variables the last analysis controlled for and which variables had to be excluded due to collinearity.

Response: One of the reasons for using a backwards stepwise regression model was collinearity in the dataset, for example between physical and emotional abuse in childhood. All variables that showed a bivariate association (p<0.1) with mental disorder were, however, entered into the backwards stepwise regression model. This is now stated on page 12 of the manuscript (see above).

RESULTS

22. For consistency, please state that the social worker was an IOM social worker.

Response: We have amended the text (page 12) as recommended, which now reads:

“Of the 176 women, 28 could not be traced by IOM social workers, 9 declined to be approached by the research team following contact with the IOM social worker, and 19 declined to give informed consent upon contact with the research team…”

23. Please give information on the countries of destination in the same detail as in the abstract in addition to % or numbers.

Response: The majority of women were trafficked to Turkey or Russia. To protect women’s anonymity, percentages are not shown for the proportion of women trafficked to individual EU member states or to Bosnia and Herzegovina, Croatia, Israel, Kosovo, Serbia, Ukraine, and the United Arab Emirates. We report on page 12 that:

“Women had been trafficked to Turkey (39.7%), Russia (27.5%), the European Union (11.6%) and elsewhere (21.2%), including Bosnia and Herzegovina, Croatia, Israel, Kosovo, Serbia, Ukraine, and the United Arab Emirates”

24. Please change sentence 2 and 3 as women are not able to refuse to participate if they cannot be traced in the first place. Rather provide a percentage for women who refused to participate after being asked, as loss to follow up and declining to participate might have very different reasons. Also, please provide information on why the two women were excluded.

Response: Thank you for highlighting the need to describe the recruitment of study participants more clearly. We have amended the text (page 11), which now reads as follows:

“As shown in Figure 1, 216 women survivors of human trafficking returned to Moldova via the IOM APP program during the study period. 178 met the study inclusion criteria, of whom 2 were excluded due to severe ongoing physical illnesses. Of the 176 women, 28 could not be traced by IOM social workers, 9
declined to be approached by the research team following contact with the IOM social worker, and 19 declined to give informed consent upon contact with the research team. 120/176 (68%) women completed interviews at a mean of 6 months post-return (range 2-12 months).”

25. Please describe what is meant with “budgeting” – did they have financial problems due to a lack of money or due to a problem of dealing with the money they have

Response: Thank you for highlighting the need for further clarity on this point. Women were asked whether they “get enough money for their basic needs.” We have therefore amended the text (page 13) as follows:

“...the most commonly reported [needs] were difficulties with daily activities (51.7%), accommodation (42.5%), employment (40.0%), and lack of money (39.2%).

26. How do you know from the data that the reduction in unemployment is due to IOM assistance?

Response: Thank you for highlighting this point. We have now deleted the statement that the reduction in unemployment was due to IOM assistance.

27. Predictors of mental disorder: why was residency not included?

Response: Residency showed a bivariate association with mental disorder (p=0.045) and was included in the backwards stepwise regression model. As described above, we have added a footnote to Table 5 listing all the variables that were entered into the backwards stepwise regression model.

28. It is unclear what factors the final multivariate logistic regression model controlled for, after the stepwise analysis was conducted. Please state that in the text and table.

Response: We are grateful to the reviewer for highlighting the need for clarity regarding which variables were included in the backwards stepwise regression model as potential predictors of mental disorder. As detailed above, we now state in the Methods (page 11-12) that all variables that showed a bivariate association (p<0.1) with mental disorder were entered into the backwards stepwise regression model. As noted above, we have also added a footnote to Table 5, listing each of the variables that were entered into the backwards stepwise regression model.

DISCUSSION

29. Is it possible to compare levels of childhood abuse among trafficked women to the general population or other trafficked women as the prevalence rates seem comparatively high to what is generally revealed in survey research?

Response: Thank you for highlighting this. We now report, on page 15 of the manuscript, that:
"A high proportion - thirty percent - of study participants reported childhood sexual abuse; a recent systematic review reported that worldwide the prevalence of childhood sexual abuse among women ranges from 0% to 53%, with most studies reporting a prevalence of between 10% and 20%. [36] It has been proposed that pre-trauma experiences – such as childhood abuse - can act through cognitive and biological mechanisms, to increase risk of PTSD in adulthood [37]."

30. You do have some data on the trafficking experience, so please change lack of data to minimal data.

Response: We have amended the manuscript as recommended. The text (page 18) now reads as follows:

“Our analysis was also limited by the lack of data on women’s psychological processes during the trauma and minimal data on women’s experiences during the trafficking situation, which would have allowed us to model the role of trauma-related factors.”

31. Can you explain what the ethical reasons were that prevented you from collecting data on the trafficking experience. Please align with the information given in the methods.

Response: As detailed above, we have expanded on the information provided in the “Ethics and Consent” subsection of the Methods (page 7) to provide greater detail on this point. IOM Rehabilitation Centre staff are concerned about re-traumatising women survivors of human trafficking and they have a policy of not asking women about what are often very extreme and degrading experiences. Questions such as these would only be appropriate within the context of a long term therapeutic relationship. During the formative work for this study there was therefore a clear request from the IOM Rehabilitation Centre that we did not ask about women’s experiences while they were trafficked. We are happy to repeat this information in the Discussion if the Editorial Team wishes us to do so.

32. Please add “Based on our analysis” to “we have no reason to think” as you have not found any differences to those who could not be followed up. Also, change the sentence from “those who did not” to “those who could not be followed up or did not agree to participate.”

Response: We have amended the manuscript as recommended. The text (page 19) now reads as follows:

“Based on our analysis, we have no reason to think that there were major differences between the 68% of those eligible who agreed to participate in research and those who could not be followed up or did not agree to participate.”

IMPLICATIONS

33. Why do you only talk about the applicability of the cognitive model of PTSD when the study looked at more forms of mental disorder?
Response: Thank you for drawing our attention to this point. Of the 65 women diagnosed with a mental disorder at an average of 6 months post-return to Moldova, 58 were diagnosed with either PTSD or depression. We have now added the following information about the cognitive model of depression (page 16):

“The cognitive model of depression includes both the negative thinking styles about self and the world [42] and the recognition of predisposing, precipitating and maintaining factors in influencing the likelihood of someone having a diagnosis of depression in adulthood.[43] For the women survivors of trafficking in this study, the high rate of adverse experiences in childhood, the low level of education beyond the age of 14, the trauma as part of trafficking, and the high level of ongoing environmental stressors, would all influence onset and persistence of depression.”

CONCLUSIONS
34. The last sentence could be stronger, as it is not only important to test therapies that take pre- and post-trafficking factors into account (that is obviously important as well!) – rather it seems essential that these therapies address these issues as it sounds like they have not done this up to date.

Response: Thank you for this point. We agree with this comment. The first author works clinically in PTSD and has discussed your comments with two senior clinician colleagues and has amended the conclusions (pages 20-21).

“Assessment for mental disorders should be part of re-integration follow-up care for women survivors of human trafficking. Mental disorders at that time, most commonly PTSD and depression, are likely to be influenced by a range of predisposing, precipitating and maintaining factors. The combined nature of pre-trauma, peri-trauma and post-trauma factors in women survivors of human trafficking suggests that treatment of mental disorders will be challenging. Care plans for survivors of trafficking must be based on individual needs, including application of clinical guidelines for the treatment of PTSD and of depression. If person cannot engage or does not want to engage in CBT, or CBT is not available, or the woman has ongoing severe stressors, antidepressants are recommended.[47] Evidence is needed on the effectiveness of therapy for PSTD in survivors of human trafficking.”

TABLE 1
35. The distribution of n in the table does not make sense. Are there really only 6 women with mental disorders?

Response: Thank you for highlighting this error. 65 women were diagnosed with mental disorders at an average of 6 months post-return to Moldova; Table 1 has now been corrected.

36. The total does not always add up to 100 in all cells. Please check each individual cell.

Response: Thank you for highlighting this. We have checked the individual cells totals and corrected two errors.
37. Please change ‘general obligatory’ to primary education if applicable.

Response: Compulsory education in Moldova includes primary education (until the age of 11) and lower secondary education (until the age of 15). Upper secondary education and higher is not compulsory. We have amended the appropriate cell of Table 1 and the Results (page 12) to reflect this.

38. The coding of the living situation variable does not make sense. Where are women who lived with their partner and their children? There must be overlaps between the categories.

Response: Thank you for drawing our attention to this point. We have amended the relevant cell of Table 1: the Living Situation variable is now coded as follows: alone; with parents; with child(ren) only; with partner; other.

39. Reword “confidante” as it is not clear what is meant with it.

Response: This variable refers to whether women survivors of human trafficking reported having had someone with whom they talked regularly and would have been able to discuss a problem, such as a friend, partner, or family member. We feel that such a relationship is best described by the term “confidante”.

40. Please state that the abuse variables only refer to childhood abuse by someone from the household, not any abuse before trafficking.

Response: We have added a footnote to Tables 1, 3 and 5 stating that the physical, sexual, and emotional childhood abuse variables refer to abuse prior to age 17 by a parent or other adult in the household.

41. As women trafficked to other countries make up nearly a third of all those trafficked, information should be given for how high the percentages are for these other countries (at least in the results section) and an additional category for specific country might have been created.

Response: We now provide this information in the Results section (page 12).

“Women had been trafficked to Turkey (39.7%), Russia (27.5%), the European Union (11.6%) and elsewhere (21.2%), including Bosnia and Herzegovina, Croatia, Israel, Kosovo, Serbia, Ukraine, and the United Arab Emirates.”

The majority of women were trafficked to Turkey or Russia. Small numbers of women were trafficked to other countries. To protect women’s anonymity, percentages are not shown for the proportion of women trafficked to individual EU member states or to Bosnia and Herzegovina, Croatia, Israel, Kosovo, Serbia, Ukraine, and the United Arab Emirates.

TABLE 2
42. Add “human” to the title for consistency.

Response: We have amended the title as recommended.

TABLE 5

43. Please provide information on what factors have been adjusted for.

Response: As detailed above, we now provide more information in the Methods section (pages 11-13) on the multivariate logistic regression presented in Table 5. We have also added a footnote to Table 5, listing which variables were entered into the backwards stepwise regression model used.

44. Please specify that duration of exploitation was measured in months. Check if the language of exploitation and trafficking experience is consistent with the text.

Response: We have amended the Table and now specify that duration of trafficking was measured in months. We now refer to “duration of trafficking” rather than “duration of exploitation” throughout the text and tables.

45. Also give a range for the social support score and number of unmet needs to assist the reader in interpreting the AOR.

Response: We have added this information as requested. Ranges are also shown in Table 1.

ALL TABLES

46. Change “6 months post-return” to “on average six months post return”.

Response: We have amended the tables as recommended.

FIGURE 1

47. Please format the figure like the original figure as the current figure is confusing due to a lack of space and lines.

Response: We have resubmitted Figure 1; the Figure is reproduced from an earlier paper (Ostrovschi et al, 2011) published in BMC Public Health.

OVERALL

48. Please make sure you refer consistently to trafficked women, female trafficking survivors or trafficking victims.

Response: Thank you for highlighting this. We now refer consistently to participants as women survivors of human trafficking.

49. There is confusion whether you refer to 6 months post-trafficking or a mean duration of 6 months post-trafficking. Please align within the text and tables.
Response: Thank you for highlighting this. We have amended the text where appropriate and now refer throughout the manuscript to an “average of 6 months post-return”.

Reviewer #2

1. The other article reporting from this dataset needs to be cited and acknowledged (Ostrovschi et al 2011). It needs to be shown what the differences between both articles are.

Response: Thank you for this point. The earlier paper reporting on this dataset (Ostrovschi et al 2011) describes the socio-demographic characteristics of the study participants and their psychiatric diagnoses. This current manuscript describes the risk factors for psychiatric disorders diagnosed at an average of 6 months post-return to Moldova. We have now amended the Background (page 4) as follows and provide a reference to the earlier paper:

“No previous research has described risk factors for diagnosed mental disorder among women survivors of human trafficking.

The present study addresses this gap by assessing a consecutive sample of ethnic Moldovan women survivors of human trafficking assisted on return to Moldova using a diagnostic instrument to measure mental disorder, including co-morbid disorders.[14] We previously reported that 54% of this sample met diagnostic criteria for mental disorder at an average of 6 months post-return to Moldova.[15] Given work in other trauma contexts we were particularly interested to consider abuse prior to trafficking and on post-trauma social stressors and social support as potential risk factors for diagnosed mental disorders in women survivors of human trafficking.[14, 16-18]"

ABSTRACT

2. Please write out AOR the first time you use it.

Response: We have amended the abstract as requested.

3. Why is duration of trafficking independent risk factor? AOR is not significant.

Response: In multivariate logistic regression, duration of trafficking showed a borderline association with mental disorder (AOR 1.12, 95% CI 0.98-1.29). Analyses were based on a small sample, and we believe it is likely that a larger study would have detected a significant independent association between the two factors. We have, however, amended the Abstract to state that only a borderline association was detected in this study:

“Childhood sexual abuse (Adjusted Odds Ratio [AOR] 4.68, 95% CI 1.04-20.92), increased number of post-trafficking unmet needs (AOR 1.80; 95% CI 1.28-2.52) and poor post-trafficking social support (AOR 0.64; 95% CI 0.52-0.79) were independent risk factors for mental disorder. Duration of trafficking showed a borderline association with mental disorder in multivariate analyses (AOR 1.12, 95% CI 0.98-1.29).”
METHODS

4. You describe the inclusion criteria. Among the mentioned inclusion criteria one pops out and deserves more explanation: “and had received crisis-intervention care from this programme.”

Response: Thank you for this point. We should have made it clearer that all women survivors of human trafficking who are assisted to return to Moldova are eligible to receive IOM crisis-intervention care after returning, so there is nothing selective about our sample. We have now amended the wording on page 5 to:

“All women survivors of human trafficking who are assisted to return to Moldova are eligible to receive IOM crisis-intervention care upon return. Crisis-intervention care includes an assessment of medical, psychological, legal and social needs and the provision of residential care for up to 1 month [16,20] Crisis-intervention care is followed by up to 12 months community rehabilitation for women who opt to receive further post-trafficking support from IOM.[16,20]

Fuller details are presented in an earlier paper (Ostrovschi et al, 2011); a reference to this paper is provided in the text.

5. Some statements need more explanations:

a. “Following discussions with IOM we chose not to ask about the trafficking experience itself.” How can you assess PTSD without the possibility to ask what they experienced during trafficking?

Response: There has been controversy about the application of Criterion A in the diagnosis of PTSD (e.g. see Weathers and Keane (2007)). All women met the UN protocol definition of a trafficked person which had been applied by IOM based on prior detailed assessment by experts in trafficking. This requires that the person had been moved by force, coercion or deception, for the purposes of exploitation.[1-4] By its nature, trafficked persons have mostly experienced severe trauma characterised by physical and sexual violence and threats while trafficked.[5-8] Criterion A1 traumatic events involving interpersonal trauma are those most likely to be associated with PTSD (Kilpatrick et al 2009). For the PTSD assessment using the SCID the psychiatrist asked while women are in the trafficking situation it is common to go through very difficult experiences such as being seriously harmed or injured, or being threatened that you or someone close to you will be seriously harmed, or another type of very horrible experience. Did anything like this happen to you? If they said yes, (and 100% of women in the sample meeting PTSD criteria did) the interviewer proceeded to ask about PTSD symptoms in relation to this event, without forcing the woman to describe the details of the event. We now discuss this in the Methods section of the manuscript (page 9) and in the limitations section of the Discussion (page 17).

b. Later on you say that data were collected on trafficking experiences duration; so you mean that no information was assessed in what way women were exploited? Even if so, can you explain to the reader what Moldavian women
usually have experienced? Only from Table 1 the reader known that it’s mainly sexual exploitation

Response: Thank you for highlighting the need for greater clarity on this point. Information on the duration and type of trafficking and the country to which women had been trafficked were collected by IOM during women’s registration with the Assistance Prevention and Protection Programme (APP) and shared with the research team. We now state this on page 7:

“Following discussions with IOM it was considered that women may be distressed by recounting their trafficking experiences, including with regards to how they had been trafficked, threats to themselves and others, witnessing and experiencing physical and sexual violence, sustaining injuries, and leaving the trafficking situation. As the primary aim of the study was to describe the mental health status of women survivors of human trafficking, we therefore chose not to ask about the trafficking experience itself. Instead, we made use of existing data on the duration and type of trafficking and the country to which women had been trafficked which had been collected IOM during APP registration.”

Also, we now state on page 9:

“Data on country trafficked to, duration of trafficking in destination country, type of exploitation, and time since return to Moldova were collected by IOM during women’s registration with the APP programme in Moldova.”

6. For the modified versions of the Conflict Tactics Scale, please report internal consistencies for the three scales from your sample as well as example items from the scales.

Response: We have now added example questions and Cronbach’s alpha scores to page 8 of the manuscript. The 10 item physical subscale and 6 item emotional subscales of the Conflict Tactics Scale each had high internal consistencies (0.88 and 0.88). The 2 item sexual abuse subscale also had acceptable internal consistency (alpha score of 0.70).

7. For the modified CANSAS-SF please report the items you have added to the original items. Please also report internal consistencies or other coefficients of reliability and if existing of validity. Please state more clearly that this does not refer to your data but to a difference publication: “Correlations of inter-rater reliability by service users and test-retest reliability have been shown elsewhere to be very high (r=0.98, P<0.01 and r=0.71, P<0.001 respectively).[30].”

Response: We have amended the text on page 10 as recommended and now state that “correlations of inter-rater reliability by service users and test-retest reliability have been shown elsewhere to be very high (r=0.98, P<0.01 and r=0.71, P<0.001 respectively).[30].” We also now report that Cronbach’s alpha for the modified scale was 0.83.

8. Please also report the internal consistency of the original and modified social support questionnaire used in your study.
Response: The social support questionnaire had low internal consistency in this study; the 3 item affective support subscale and the 5 item confidante subscale had alpha scores of 0.04 and 0.09, respectively. We now report these scores on pages 10-11 of the manuscript. The scale was developed to measure social support among family medicine patients, in which the subscales scored 0.64 and 0.62, respectively. Although the Duke Functional Social Support Questionnaire was chosen in collaboration with IOM on the basis of its face validity, relevance to this population, and pre-piloting, the low internal consistency of the scale indicates the need to develop and validate measures of social support for women survivors of human trafficking. The low internal consistency may reflect the different aspects of social support in this context: the women survivors of human trafficking had returned to their country of origin and had received crisis support, but women may have also experienced rejection from their families and friends and not all were receiving ongoing support from IOM. Regarding affective support, for example, women tended to score the question “I get love and affection” more highly than the question “I get help when I am in trouble.” Regarding confidante support, women tended to score the question “I get chances to talk about work” more highly than “I get useful advice about important things in life.” The low internal consistency may also reflect that the high prevalence of PTSD in this sample, as PTSD frequently involves shame and avoidance of discussion. We discuss these points in the limitations section of the manuscript (pages 17-18).

9. The assessment of baseline psychiatric disorders seems to be a weak point of the study:

a) The baseline assessment was a clinical assessment. Do you have any information on the reliability of this assessment, e.g. inter-rater reliability? What is astonishing, from Ostrovschi et al., 2011, we know that at baseline 105/120 women received any diagnosis at baseline, some months later it’s much less. It is astonishing that chronic diagnoses seemed to be made at baseline, e.g. schizophrenia, and were not confirmed with the SCID some months later. This baseline assessment was done based on ICD-10, the SCID assessment based on DSM-IV. Does this explain the inconsistencies? Please invalidate my doubt that this was reliable.

Response: Baseline assessment was carried out by one senior clinical academic consultant psychiatrist who had been previously trained in the application of ICD-10 and who had worked at the IOM Rehabilitation Centre for approximately 4 hours per week for many years. He took a general psychiatric history and also had access to collateral history gathered by the centre social workers and centre psychologist. The cases of schizophrenia that he diagnosed were women with a past history and/or with current symptoms that he would have prescribed medication for and arranged a review. The difference between that history and the research interview (conducted on average 6 months by a second psychiatrist and using the SCID) is that the research interview was carried out for current mental state only i.e. in the past month. No woman had psychotic symptoms at the 6 month interview.

As we stated in Ostrovschi et al, 2011: “The ICD-10 classification was used when the women entered in the crisis phase, in line with normal practice in the centre, and DSM-IV was used at the re-integration phase. Although there are at least minor differences between two classifications in almost every category of disorder, these two widely used classifications
are generally found to be functionally equivalent and are generally comparable, with a high level of concordance reported for depression, dysthymia, substance dependence and generalised anxiety disorder. One key difference is that ICD has a potentially lower threshold for experiencing a severely threatening event....The second key difference is that ICD does not require impairment to be present whereas DSM does. The third difference is that DSM requires three symptoms of avoidance whereas ICD requires only one. Overall the effect of the differences is that using the ICD classification is recognised to lead to an increase in prevalence of estimates of PTSD compared to if DSM criteria are used.....Given this, our methodological differences are more likely to explain any apparent recovery by the second time period. As our key finding is the extent of ongoing psychiatric illness in the second time period for those with co-morbid PTSD anxiety or depression at baseline, we can be confident that women with diagnoses at the rehabilitation phase had significant levels of mental distress and impairment, and that any difference between the two methods cannot account for women remaining or becoming more mentally unwell at follow up.”

b) And it seems that you have just used anxiety or depression from the baseline assessment for the adjustment. Why?

Response: The original manuscript referred to baseline mood or anxiety disorder in error; of the 107 women were assessed as having an ICD-10 disorder upon return to Moldova, 99 women were assessed as having mood or anxiety disorders. We have now amended the text to refer to “baseline mental disorder”.

10. Do you have any study that reports on the reliability or validity of the Romanian version of the SCID?

Response: We used the official translated version of the SCID, carried out under the co-ordination of Dr Daniel David and available through the SCID website and the website of the Romanian Psychological Testing Services: http://rtscluj.ro/content/view/50/20/. This version was pre-tested by two Moldavian psychiatrists trained in standardized interviews who found it was understandable to participants and had good face validity. The interviewer was trained used the official SCID video training, purchased through the SCID website.

11. Can you report the average time between baseline and SCID-assessment? Is this a potential predictor variable for a SCID diagnosis?

Response: Baseline assessments were conducted within two days of women’s arrival at IOM by a senior consultant psychiatrist. SCID assessments were conducted an average of 6 months later (range 2-12 months). To improve clarity, we have re-ordered our descriptions of the two psychiatric assessments so that they are reported sequentially in the text (pages 9-10):

Mental Disorder
“Assessments of participants' psychiatric condition upon return to Moldova were made available to the research team by IOM. These initial assessments were conducted within two days of women’s arrival at IOM by a senior consultant psychiatrist, based on the International Classification of Diseases (ICD-10).[27] Full
For the purposes of this study, presence of baseline mental disorder was analysed as a binary variable.

During survey interviews, conducted on average 6 months post-return to Moldova (range 2-12 months), participants were assessed for current (last month) DSM-IV Axis I mental disorder by a Moldovan psychiatrist. Assessments were conducted using the official translated Romanian Non-Patient version of the Structured Clinical Interview for DSM–IV Axis I Disorders (SCID).[30, 31] This version was pre-tested by two Moldavian psychiatrists trained in standardized interviews. It was understandable to participants and had good face validity.

The time between baseline assessment and SCID diagnosis is equivalent to the variable “Time since return to Moldova”. Bivariate analysis showed that time since return to Moldova was not significantly associated with SCID diagnosis (p=0.131).

12. Please use “statistical analysis” as a heading.

Response: We have amended the heading as request (page 11).

13. Table 1: How did you calculate Fisher's exact test when there are more than two x two categories?


14. It is not fully clear what you mean with “Variables were included in the model if they showed an association with mental disorder in bivariate analyses (p<0.1)” after having said that you are using backward stepwise inclusion. Please state that these were the variables with which you started the back inclusion procedure.

Response: Thank you for highlighting the need for greater clarity in our description of the statistical analyses. The description should have stated that variables were entered rather than included in the backwards stepwise regression model if they showed an association with mental disorder during bivariate analyses. As detailed above, we have rephrased our description of this stage of the analysis (page 11).

15. What was the dependent variable of logistic regression models? Any SCID diagnosis or just mood and anxiety diagnoses? It is not fully clear how many different logistic regression models you calculated. Have you calculated one model for each predictor variable? Please report more carefully. How was adjustment of Odds Ratios made? I do not understand whether you have systematically controlled for some variables. Did you calculate binary logistic regression models with constant?

Response: The dependent variable of logistic regression models was any SCID diagnosis of mental disorder, as assessed at an average of 6 months post-return to Moldova. The
manuscript originally referred to SCID-diagnosed mood and anxiety disorders because although the SCID assessment assessed all Axis I disorders, only diagnoses of mood and anxiety disorders (depression, post-traumatic stress disorder, generalized anxiety disorder, and panic disorder) were made. When describing the statistical analysis (page 11) we now state:

“Analyses used SCID-diagnosed DSM-IV mental disorder as the dependent variable of interest; the study was not adequately powered to conduct analyses by type of DSM-IV mental disorder.”

3 logistic regression models were calculated and are presented in Tables 3, 4, and 5. Tables 3 and 4 show the results of logistic regression models calculated to analyse, respectively, (a) the association between childhood abuse and mental disorder at an average of 6 months post-return among women survivors of human trafficking (controlling for education and pre-trafficking employment only), and (b) the association between social support, social stressors and mental disorder at an average of 6 months post-return among women survivors of human trafficking (controlling for baseline mental disorder only). The variables controlled for were pre-specified at the point of hypothesis formulation. Table 5 presents the results of our regression analysis of predictors of mental disorder at an average of 6 months post-return among women survivors of human trafficking, conducted using a backwards stepwise regression model. All variables that showed a bivariate association with mental disorder (assessed at an average of 6 months post-return) and were entered into the backwards stepwise regression model; these variables are listed in full as a footnote to Table 5.

RESULTS

16. “Very little difference was observed in respect of age, country trafficked to, duration of trafficking, marital status, or pre-trafficking employment status” What do you mean “little difference”? Do you have p values?

Response: Differences between participants’ and non-participants’ ages, destination countries, durations of trafficking, marital statuses, and pre-trafficking employment statuses were not significant. We now state this more clearly on page 12 and provide a reference to an earlier paper (Ostrovschi et al 2011) which gives further information.

“IOM provided restricted access to anonymized data to enable broad comparisons to be made between participants and non-participants. No significant differences were observed in respect of age, country trafficked to, duration of trafficking, marital status, or pre-trafficking employment status.[15]”

17. Table 1: the N in the third column is not correct.

Response: Thank you for highlighting this error. 65 – rather than 6 – women were diagnosed with mental disorders at an average of 6 months post-return to Moldova. We have now corrected the N in the third column of Table 1.
18. Social support score: the direction of the association is counter-intuitive. In table 1, participants who are burdened by mental disorders seemed to have received more social support? Why? In the regression model the direction is in the opposite direction.

Response: Thank you for highlighting this error. In the original manuscript, the social support scores for people with mental disorder and without mental disorder had been entered incorrectly. This has now been corrected. Among people with mental disorder, the mean social support score was 16.1. Among people without mental disorder, the mean social support score was 24.3.

19. Some of your statements imply that you use only SCID anxiety and depression diagnosis as a dependent variable in logistic regression? Please clarify. Seems that you have assessed all disorder. Please justify if this is the case.

Response: The manuscript originally referred to SCID-diagnosed mood and anxiety disorders because although the SCID assessment assessed all Axis I disorders, only diagnoses of mood and anxiety disorders (depression, post-traumatic stress disorder, generalized anxiety disorder, and panic disorder) were made. We now state:

"Analyses used SCID-diagnosed DSM-IV mental disorder as the dependent variable of interest; the study was not adequately powered to conduct analyses by type of DSM-IV mental disorder."

DISCUSSION

20. The problems stated above were not discussed. The discussion of limitations should include the identified problems. The recommendations should be made carefully, according to the findings and their limitations.

Response: We have amended the manuscript and now discuss the additional study limitations highlighted by the Reviewer (pages 17-19). The sample, which was relatively small, is of women survivors of human trafficking who accessed IOM support and is may not be representative of all women survivors of human trafficking returning either to Moldova or elsewhere in Eastern Europe. However, our sample is representative of women in Moldova who accept post-trafficking services, in this case the standard IOM package used in a similar way to other IOM post-trafficking centres. It is possible that the results could generalize beyond Moldova to women using IOM post-trafficking centers in other return locations, although results could differ from centers with a greater focus on follow-up mental health and/or if the centre had a specialist in trauma focused cognitive behavioral therapy (CBT).

We also discuss how, because the study was conducted over 18 months, it was not possible to formally test the validity of all of the instruments. We used the official translated version of SCID used, which according to two qualified clinical academic psychiatrists, both with experience of community psychiatry and trained locally in psychiatry, had good face validity. As noted above, we also now acknowledge that another possible limitation is that we did not ask about details about the exact event that the women experienced PTSD in relation to.
We also discuss the low internal consistency of the Duke Functional Social Support Questionnaire.

As recommended by the Reviewer, we have revised the Implications and Conclusions sections of our manuscript (pages 19-21). These sections highlight our key findings: (1) that at an average of 6 months post-return, the women survivors of human trafficking in our sample had a very high prevalence of diagnosed mental disorder, especially PTSD and depression; and (2) that mental disorder is influenced by a range of predisposing, precipitating and maintaining factors. Based on these findings, we therefore recommend that assessment for mental disorders should be part of re-integration stage follow-up care for women survivors of human trafficking. We also recommend that standard guidelines should be applied, e.g. the use of trauma focused CBT or eye movement desensitization and reprocessing (EDMR) for PTSD and CBT for depression. If women are not ready to discuss trauma, if CBT is not available, or if women face ongoing severe stressors including danger, we recommend the use of antidepressants. We note that although trauma focused CBT may be useful, the high rate of previous abuse will require that therapy includes looking at earlier traumas, which will mean additional training and longer therapy. We also note the important role of social advocacy for women survivors of human trafficking.

Thank you for your time in considering our revised manuscript. We are pleased that both reviewers believed the manuscript to be an article of importance in its field, and we are grateful for their thorough and thoughtful comments.

Yours sincerely,

Melanie Abas, Nicolae Ostrovschi, Martin Prince, Carolina Trigub, and Siân Oram.