Author’s response to reviews

Title: Assessment of need for Inpatient Treatment for Mental Disorder among Female Prisoners: A Cross-Sectional Study of Provincially Detained Women in Ontario

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Author’s response to reviews:

Assessment of need for Inpatient Treatment for Mental Disorder among Female Prisoners: A Cross-Sectional Study of Provincially Detained Women in Ontario

Thank you for the very helpful reviews and the opportunity to address the reviewers comments. We believe that the reviewers have enabled us to improve the manuscript, and we thank them very much for their careful reading and constructive feedback. We will respond to the comments in turn.

Reviewer 1

Background

Reviewer’s comment

The introduction lacks a reason on why it is important to investigate women separately. Are women expected to be different compared to men with regard to mental health needs and security needs.
Our response

The first paragraph sets out the high prevalence and comorbidity, and paragraph 3 explains the lack of previous studies among women. We believe this sets out the rationale for studying women.

Reviewer’s comment

Prevalences for women are given without comparing them to the prevalences of men. Why would you expect different DUNDRUM scores for women? The authors state that "Moreover, this group frequently have complex and multiple needs due to having simultaneous mental disorders, and high rates of previous trauma (5) and high levels of psychological distress(6)." However this is also the case for male prisoners. eg. Fazel et al. 2002 reports prevalences for men also.

Our response

We agree that males in custody also have significant need, and we have not set out a hypothesis that DUNDRUM scores would be different comparing females and males. We believe that women in custody are an under-researched group and provide this in the introduction as part of the rationale for our study encompassing an entire population of provincially incarcerated women in Ontario.

Reviewer’s comment

What is meant by intervention over control? Line 38. Could you clarify.

Our response

Thank you - We have removed “over control” to improve clarity.

Reviewer’s comment

The study by Jakobowitz (2017) needs to be explained in more detail. I.e. the definition given for an unmet need is not clear for me.
Our response

Thank you - We have included the definition “whether there was an appropriate action that had not been taken” in our manuscript – this is the definition as given by Jakobowitz, but have added “(such as a treatment or referral to an appropriate service)” for clarity.

Reviewer’s comment

Method

The authors state that: "Health care managers at each institution were asked to categorise the severity of mental health need of every prisoner on a 5-point scale as either "Very Serious", "Serious", "Moderate", "Mild" or "None"."

Which method/scale was used to determine the severity? Is this done with the BJMHS? Does the BMJMHS provides cut off points for these categories? If this is not done with an existing scale/method what steps have been done to investigate it’s validity?

Our response

Thank you - We are not referring to any pre-existing scale. As stated, managers were simply asked to categorise on the 5-point scale as described. We have amended the first paragraph of the limitations section (page 14) to further highlight this point “There are a number of limitation in our study. First, inmates who were not identified as having mental health needs by healthcare managers using the 5-point scale, or who were not known by the healthcare managers as individuals receiving input from healthcare staff may not have been identified during this study, as this method for identifying those most seriously unwell had not been validated. There is therefore a possibility that our study has underestimated the true number that requires admission.”

Reviewer’s comment

Statistical analyses

This section needs to get into more detail. For example with regard to AUC analyses, which variables were used: outcome, predictors. For example, sometimes need for admission is used, whereas in other cases, need for general bed of need for high intensity bed is used.
Our response

Thank you – we have added “using both need for admission, and need for high intensity bed as outcomes and DUNDRUM-1 and -2 scores as predictors” (final paragraph, page 8)

Reviewer’s comment

Are the analyses done with the 9 item total score of the DUNDRUM or the 11 item total score? Please make this clear throughout the manuscript and preferably use both.

Our response

Thank you – we have used 11 item scores throughout. We have stated in first full paragraph of page 8 that DUNDRUM-1 is an 11 item scale, and make no reference to using a 9 item version of the scale.

Reviewer’s comment

Results

The authors state that "Taken together, this means that if the sample of case files rated as "moderate" is representative of all cases rated as "moderate", and assuming that no cases rated as "mild" or "none" would require admission, and that among the three missing files 1 would require admission, in total 41 inmates (6.5%) need admission, of which 8 require a high intensity bed."

I tried to recalculate these numbers but could not find the same conclusion. I find 42 (25 + 16 + 1) requiring admission and 20 requiring a high intensity bed, given that the missing file does not require a high intensity bed; please rephrase this section to make it clearer.

Our response

Thank you – We have recalculated using prorated numbers to 1 decimal place, rather than rounding to whole numbers and have replaced the text in 3rd complete paragraph of page 9. In
doing this we realise that we had made an error in reporting the number of high intensity beds needed and have corrected this. We thank the reviewer for picking up our error.

Reviewer’s comment

The weighted Cohen's Kappa coefficient for all DUNDRUM-1 and -2 items was 0.52 and Percent Agreement Coefficient of 0.87, indicating moderate agreement.

Please provide kappa and PAC for DUNDRUM-1 (11 item total and 9 item total) and DUNDRUM-2 separately including mean, SD and range per rater.

Our response

Thank you – we have added the Kappa and Percent agreement coefficients for DUNDRUM-1 and -2 separately including 95% CI, and have added a reference for the interpretation of the Cohen’s Kappa (Landis and Koch 1977) (final paragraph on page 9).

Reviewer’s comment

"We found that DUNDRUM-1 scores for those requiring a high intensity bed were significantly higher than those needing a general hospital bed (t=-3.27, p=0.003, AUC = 0.83, [0.67-0.98])."

Which test is used? I can imagine that the DUNDRUM-scores were not normally distributed. Please clarify in the statistical analyses.

Our response

Thank you – we have added “scores were approximately normally distributed and (using independent samples t-test, t=3.27, p=0.003, AUC = 0.83, [0.67-0.98]) in para 1, page 9.

Reviewer’s comment

Line 47 "There was a trend towards associations between item 7 (Preventing Access) and item 8 (Victim Sensitivity) and need for admission which did not reach statistical significance."
.10 is not a trend. Be careful with interpreting results like this, one could indeed argue that the choice to use 0.05 as a cut-off for significance is arbitrary and that a p-value of 0.06 is possibly as similar as 0.05. A p-value of 0.10 however is double the original cut-off.

Our response

Thank you – we have removed this line from the manuscript

Reviewer’s comment

"There was strong evidence for association with need for admission and the other items."

Refer to a table or provide values. Interpretation of results should be placed in the discussion section. The results section should not contain interpretations of magnitudes of effects.

Our response

Thank you – we have removed this line from the manuscript

Reviewer’s comment

"Item 11 (Legal Process) perfectly predicted need for outcome."

Do the authors refer to the OR of 1 in table 1? Because that is an incorrect interpretation of the OR. Patients who needed admission scored the same as patients who did not need admission. Please check your interpretations of the analyses.

Our response

Thank you. We were referring to the table. To avoid confusion we have removed that line from the manuscript.

Reviewer’s comment
"The AUC for DUNDRUM-1 predicting need for admission was slightly higher when items 2 (Seriousness of self-harm) and item 4 (Immediacy of risk of Suicide) were omitted from the total scores (AUC = 0.82 [0.71-0.93]) compared with (AUC = 0.75 [0.63-0.88])."

Again could you clarify the interpretation of your results. You can compare these AUC's in STATA to see whether or not the model improved by removing item 2 and item 4 and report the p-value.

Our response

Thankyou – we have reported the numerical AUCs and confidence intervals for the analyses when all 11 items are analyses versus removal of 2 items which we believe need no further analyses for interpretation.

Reviewer’s comment

For DUNDRUM-2 separate AUC's are given (general vs no need; high intensity vs general). As mentioned earlier the statistical analyses are not detailed enough which makes the results section difficult to follow. Please provide these values for DUNDRUM-1 (9-items and 11 items) also.

Our response

Thank you – we have added further detail to the results (final paragraph of page 10 and first paragraph of page 11). We are not reporting 9-item scores for DUNDRUM-1, only 11 item.

Reviewer’s comment

" There was only weak evidence for an associated between legal urgency scores and need for admission (OR 1.53, p=0.068)."

Again interpretation of results. Technically it is not significant therefore no association.

Our response

We thank the reviewer for this observation – we have removed it from the manuscript.
Reviewer’s comment

Please provide sample sizes in table 2.

Our response

Thank you – we have added sample sizes to table 2

Reviewer’s comment

Discussion

The second sentence of the discussion states:

"We estimated that among a population of 643 provincially detained women in Ontario 42 required admission to a hospital facility, and a further 16 required a high intensity bed" whereas in the results section it states:

"in total 41 inmates (6.5%) need admission, of which 8 require a high intensity bed."

Perhaps I read this incorrectly (see comment 1 for the results) and by clarifying that section this misinterpretation will be corrected.

Our response

Thank you – we have corrected this – first paragraph page 12

Reviewer’s comment

"There was no difference in mean age between those that needed admission and those that did not." Data regarding this is not reported in the manuscript, you need to report this in a table or in the main text. It would be interesting to see whether the people that needed admission were different with regard to demographics compared to the people that did not need admission. Also I would like more background information on type of offences, length of imprisonment and whether or not some of the remand women were declared NGRI or not fit to stand trial.

Our response
Thank you. We have removed this line referring to the age. We agree that additional clinical data would be interesting, but unfortunately do not have this to report.

Reviewer’s comment

"Those requiring admission primarily had a psychotic illness (schizophrenia/schizoaffective disorder)." Who made the diagnoses? And based on what manual/method? Did you find significant differences between types of diagnoses between no admission, general or high. Please report the data in results section.

Our response

Thank you – as stated in last paragraph of page 7 – diagnosis as recorded in the case file was obtained. We have not made further analyses based on diagnosis as we have made no hypotheses about this, but provide the numbers in table 1 for information.

Reviewer’s comment

"This is consistent with the purpose of the tool, and our finding provides support for the use of this tool in a female population."

Please clarify in the introduction on why you would expect differences in women? Please also expand on why you think the DUNDRUM has additional value in determining need for admission or high intensity admission.

Our response

Thank you – we have addressed this comment above (1), we have not hypothesised that there will be differences between men and women, only that there is a scarcity of data on women which we are addressing in this study.

Reviewer’s comment

Nothing is said about the interrater reliability.
Our response

Thank you – we do not feel this warrants discussion.

Reviewer’s comment

Limitations

Line 17-19 "the same clinician rated the DUNDRUM and provided an opinion as to whether the inmate needed admission"

I believe this is a major limitation. Scoring the DUNDRUM could have influenced the decision on whether or not the inmate needed admission and vice versa and this could explain the predictive value of the DUNDRUM. Why did the author not register which patients were admitted to a general secure bed or a high intensity bed. This would have given an unrelated outcome measure more free of rater bias. I understand that the authors want ecological valid data but for a validation study, the outcome measures should not be made by the same people that did the scoring of the instrument. The study becomes a lot less valuable in this respect, if not useless. The authors report data on which patients were admitted and should use that as an (additional) outcome measure.

Our response

Thank you for your comments. We have added “It was beyond the scope of our study to obtain information as to whether any of those assessed as needing admission were subsequently admitted to hospital” second paragraph, page 15.

Reviewer’s comment

Conclusions

"We have also provided validation, for the first time, of the DUNDRUM in a female prison sample."

Your study may be the first study in an exclusive female population. However, previous studies have included both male and female participants.

Our response
Thank you – we have added the word “exclusively” to this sentence.

Reviewer’s comment

Minor remarks
The paper needs a thorough proofreading regarding typo’s, consistency in reporting, reference styles (not conform journal guidelines) and the use of past tense.

For example:

Abstract
The word 'scale' is missing in line 32

Our response
Thank you - added

Reviewer’s comment
The second 'and' should be deleted in line 54 Background

Our response
Thank you - deleted

Reviewer’s comment
P4 line 38 'a recent study' not 'a recent studies'

Our response
Thank you – changed
Reviewer’s comment
P4 line 55 'a particular lack' not 'a particular a lack'

Our response
Thank you – changed

Reviewer’s comment
P5 line 44 I believe the word 'females' is missing after 'both males and'

Our response
Thank you – changed

Reviewer’s comment
P 5 line 55 'of the number of women that required treatment' not 'of the numbers of women that requires treatment'

Our response
Thank you – changed to “require”

Reviewer’s comment
P 7 Line 58 remove 'in'

Our response
Thank you – removed
Reviewer’s comment
P 8 line 4 remove 'in'

Our response
Thank you – removed

Reviewer’s comment
Line 28 'association' not 'associated'

Our response
Thank you – changed

Reviewer’s comment
Line 45 'required' not 'requires'

Our response
Thank you - changed

Reviewer 2

Reviewer’s comment
This is an original paper that examines the need for hospital admissions among women prisoners in Ontario Canada. There is a paucity of research in the area of prisoners mental health needs, but most especially for women prisoners. I am of the view that this paper will be of interest to the readers of BMC psychiatry and contributes to the literature in this field.

Our response

We thank the reviewer for their positive comments.

Reviewer’s comment

In the introduction section on paragraph 2, page 5, the authors note that the Dundrum tool is a set of four SPJ instruments. However they are not referring to the most up to date version of the tool. The Dundrum tool is in fact a suite of five instruments, the fifth being the service user self-rated version. I am of the view that the inclusion of the service user self-rated tool is quite important and would ask that the authors update their reference to the tool, reference 11 to the most up to date reference which is to tool version 26. I have included the link here: http://www.tara.tcd.ie/handle/2262/67375.

Our response

Thank you – we have updated the reference, and stated that it is a set of 5 SPJ instruments on para2, pg5.

Reviewer’s comment

I would suggest that it would be helpful if the authors added to the paragraph on page 5 that described the dundrum tool with a little more detail, in order to assist the readers. I would suggest a statement that the Dundrum tool is a 'needs' assessment tool not a 'violence risk' assessment tool would be helpful and to clarify that the other sections in the five tool suite are Dundrum-3 Programme completion and Dundrum-4 Recovery scales, as well as the service user scale (the fifth scale) which are used to assess a patients readiness to move to less secure places. It would also be helpful at this point to state that the individual items of the Dundrum 1 and 2 scales are listed in table 2, and each item is rated 0-4 according to a series of definitions. The highest scores indicating higher need for therapeutic security on admission. These small additions would assist a reader who may be unfamiliar with the tool in my view.
Our response

Thank you – we have made these amendments as suggested – pg 5 – 1st full paragraph

Reviewer’s comment

On table one, which showed the results of the mean Dundrum-1 scores and need for admission, the authors state in the manuscript that higher scores on the Dundrum-1 scale were associated with need for admission to higher levels of therapeutic security. However on examining table one, the scores appear to be reversed with higher scores listed for the group where admission was not required (25.1) and lower scores with need for a high intensity bed (12.9). I would suggest this is a simple clerical error and the scores were slotted into the wrong section on the table?

Our response

Thank you for picking up this error – we have corrected it

Reviewer’s comment

On page 10, the readers include the overall results and a secondary item-to-outcome analysis. I note that most of the items on the tool were associated with the need for therapeutic security which was a positive finding. I would suggest leaving out the statement that there was a trend towards association for times 7 (preventing access) and item 8 (victim sensitivity) as in my view an item either reached statistical significance or it did not.

Our response

Thank you – we have removed this from the manuscript

Reviewer’s comment
In paragraph one, page 11 the authors note that the scores on the Dundrum-2 triage urgency scale was not associated with the level of need for therapeutic security. This is not an unexpected finding as Dundrum-2 does not assess the level of security a patient should be admitted to, rather it assesses the urgency of need for the admission bed. Therefore I do wonder if the authors would consider examining if there was any association between the ratings on the five point scale of need with the Dundrum-2 urgency scale? I think the scale of need may better reflect the clinicians view of 'urgency' which would be interesting to readers.

Reviewer’s comment

Thank you – this is an interesting idea to investigate level of need and the DUNDRUm-2 urgency scale. However as we have only investigated files from the top 2 categories and sampled from the 3rd category, there is insufficient variation in the level of need scale in order to investigate thoroughly. We have however added to the discussion, para 1, pg 14 “Although the DUNDRUM-2 did not distinguish between need for a general hospital bed versus a high intensity bed, this was not unexpected as DUNDRUM-2 assessed urgency of admission, not security level needed”.

Reviewer’s comment

The Discussion.

In the discussion section the authors refer to Flynn et al whose findings in Ireland were similar, although examining a mainly male population referred to medium security. I would add that a similar study in London also supported these findings with the link here [https://bmcpsychiatry.biomedcentral.com/articles/10.1186/s12888-015-0620-9](https://bmcpsychiatry.biomedcentral.com/articles/10.1186/s12888-015-0620-9) and I think this would also be worth referencing. Again however this was a study of mainly male patients being referred, whereas the current study is entirely female which adds significantly to this piece.

Reviewer’s comment

Thank you – we have added this reference, and the main AUC finding (para 2, pg 13).
On page 2, line 31 (in the abstract) I think the sentence should read "on a five point scale". This is clearly a minor clerical error.

Reviewer’s comment

Thank you – we have corrected this

Reviewer’s comment

Summary.

Overall I really enjoyed reading this article and would recommend it for publication.

Reviewer’s comment

We thank the reviewer for their helpful comments and recommendation for publication