Reviewer's report

Title: Offending, custody and opioid substitution therapy treatment utilisation among opioid-dependent people in contact with the criminal justice system: Comparison of Indigenous and non-Indigenous Australians

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Reviewer: Lindsey Richardson

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This manuscript offers comparative descriptive analyses of population-level data of Indigenous and non-Indigenous individuals receiving opioid substitution therapy (OST), violent and property-related criminal charges brought against them and their experiences in custody. This paper presents comprehensive long-term data on key outcomes of interest using novel data linkages across population-level databases, and the comparative focus on Indigenous vs. non-Indigenous outcomes represents a significant contribution to the literature in this area. Its aims are clearly stated and the manuscript is well-organized. While the data and analyses presented are limited by their descriptive nature, the data presented nevertheless constitute an important identification of inequalities between Indigenous and non-Indigenous individuals across key outcomes related to OST and criminal justice outcomes. However, the manuscript possesses a number of shortcomings, some of which are significant, that would need to be addressed before it would be appropriate for publication in BMJ Open.

Major Compulsory Revisions

One of the key shortcomings includes the rationale for looking at both criminal justice and OST outcomes in the same paper. While it has been shown elsewhere and can reasonably be expected that OST may reduce criminal activity related to drug use, the linkage between the two distinct areas examined in the manuscript is not well developed and the result is a manuscript that at times feels like a series of distinct analyses with insufficient connection between them to justify inclusion in the same paper. While they two types of outcomes converge in the 4th aim that looks at OST treatment and the age of first charge, this linkage seems haphazard. In the absence of more robust rationale and explicit conclusions that flow from this rationale, it seems that the manuscript would be more appropriately divided into two papers, one on criminal justice activity, one on OST related outcomes.

Another shortcoming lies in the description of the study sample. The datasets linked for the purposes of the study represent an incredibly rich source of data, but it is described in such a way that it is not clear until quite late in the methods section exactly who is included in analyses. To remedy this it would be important to be clear in the abstract and early in the methods sections that all individuals
included in the study (1) were in receipt of OST and (2) had at least one criminal charge resulting in court appearance; and (3) had valid information regarding their Indigenous identity. That is, the current description identifies these criteria somewhat late and it is not clear from the abstract or the data linkage sections that all individuals in the study appear in the PHDAS database and the ROD/BOCSAR databases.

Along the same lines, the authors refer to the study as a cohort, which implies a much smaller sample than the population level data that the manuscript is based on. Referring to the study sample as a population-level cohort throughout would do well to clarify this ambiguity.

While the manuscripts aims are clearly outlined, it would also benefit from a clear statement of the hypotheses guiding these analyses based on the background information.

Another key concern relates to the accuracy of the language referring to what is actually being examined through the analyses provided. That is, rather than referring to individuals as opioid dependent, it would be more accurate to describe the study population as individuals engaged in OST therapy (or something similar), as the use of the term opioid dependent implies a broader population of people who use drugs than is included in the study. There are also no criteria presented for what constitutes “opioid dependent” such as the DSM-IV/V or similar. Similarly, there is some ambiguity between what is being measure in the criminal justice outcomes – rather than referring to “offending” it would be more accurate to refer to “individuals charged with offences” (or something similar”) as the relationship between being charged and actually offending is neither iron clad nor inclusive of individuals who commit criminal offences that are not charged for their offences.

While a number of findings are statistically significant – specifically comparisons between Indigenous and non-Indigenous individuals, it is not clear whether some of the statistically significant differences constitute differences of substantive import, especially given the large sample size which is bound to produce significant results. Some commentary as to these differences would provide some interesting perspectives in the discussion.

The paper would benefit from a more robust description of the potential biases introduced by the exclusion criteria for a number of the components of the analysis. For example, for the time in custody analyses, due to the exclusion of any custody episode not yet completed at the end of the observation period for the study, any long term custody episodes would not be a part of these analyses, and their exclusion seems likely to introduce significant biases that could be worked around (by including them and specifying episodes of “at least” a certain length, or by conducting sensitivity analyses that looks at how their inclusion impacts outcomes). These analyses also exclude custody episodes where individual was retained and released on the same day which could introduce the opposite bias as above, and could be an interesting sources of evidence for selective or discriminatory retention practices if these short term episodes were
found to be disproportionate among Indigenous individuals.

An additional issue is related to the analyses related to OST treatment utilization and resulting conclusions. The circumstances of OST cessation are not explored and while longer engagement in OST is generally associated with greater stabilization of opiate addiction, long treatment does not necessarily mean that individuals have better treatment outcomes as cessation could also be the result of successful tapering off of OST. Some discussion of the assumption of time in OST and treatment as being indicative of greater success would help flesh out the discussion of these analyses.

Lastly, while the conclusion that custody episodes are opportunities for OST initiation, multiple results in the study point to the underutilization of OST outside of custody among Indigenous individuals and the failure of out-of-custody OST treatment to engage and retain this population, as well as shortcomings in the continuity of OST provision following release from custody. As such, there is a significant foregone opportunity to identify and call for culturally appropriate OST that specifically accommodates the needs and cultural values of Indigenous individuals and promotes continuity of care.

Minor Essential Revisions

In addition to these points there are a number of minor concerns, which are listed according to manuscript section below:

Abstract

- Line 48 - All of the individuals in the study are engaged in OST and so the statement that the study examines OST utilization among opioid-dependent individuals is somewhat misleading (i.e. the sample is not all opioid-dependent individuals but only those engaged in OST at some point during the observation period)
- Please include percentages of the number of Indigenous and non-indigenous individuals in the sample to facilitate comparison with other figures in the results given as percentages (line 59)
- Line 61 - The scale of median number of charges is not clear (i.e., is this per 100 person years, per person?)

Background

- The section in the background about the disease burden of illicit drug use (line 86) is unclear – is the disease burden referring to substance use disorders (clinically defined) or use, or diseases resulting from these?
- Lines 97-105 - The discussion of the Royal Commission seems to draw false contrast between the recommendations of the Commission and other potential explanations of over-representation of Indigenous people in prisons – i.e. the Commission pointed to much more than discrimination and racial bias, and so other findings reinforce, rather than contradict, its findings.
- There is a significantly missed opportunity to draw the links between OST and
reductions in crime (and the gap in knowledge among the target population) in the introduction (Line 108).

- Line 111 - “OST use among Indigenous” should read “OST use between Indigenous and non-Indigenous people”.

Methods

- Line 164 - Censoring follow up time using the date of death is not completely accurate – censoring occurs when an individual’s observation period or outcome is not completely known (i.e. individuals still under observation at the end of the observation period would be right censored, but not those who had died, whose end of observation period is fully known)

- Lines 167-169 - How were Australian Aboriginal/Torres Strait Islander People identified? Was this externally verified by some administrative criteria, self-identification, interviewer identified, etc.?

- Lines 171-172 - How many records for people with unknown/missing Indigenous identity excluded?

- The definition of the study cohort does not seem to accurately reflect the study inclusion criteria – rather than ‘recorded history of opioid dependence’ should this not be ‘reported enrollment in OST’ (Lines 184-185)?

- In the statistical analyses, there is an opportunity to draw attention to the rich data by talking about how it is only possible to conduct these comprehensive, long-term population level analyses because of the data linkages utilized in the study.

- Line 216 - should ‘treatment’ not be ‘custody’?

- Lines 225-226 - to be more clear about how the follow up time is calculated, should this sentence not state “The percentage of total follow-up time each individual spent in treatment was compared by dividing the cumulative time spent in treatment by the total length of follow up….and multiplying by 100.”

- It isn’t clear in the “Temporal Relationship’ section what the outcome being examined was – whether it was the time of first offence to OST (which is what is reported in the results) and why this was examined and not whether OST initiation decreased the frequency of charges.

Results

- Lines 242-243 Please report sample sizes were reported in a consistent manner (i.e. n, followed by percentage). Including an ‘of these’ after Indigenous and before 4,615. It would also be helpful to know whether the gender breakdown was consistent between Indigenous and non-Indigenous groups.

- Line 253 - It would be very helpful if the number of offences which were proven was also provided for non-Indigenous individuals charged with offences. It would also be important to differentiate between a charge being “proven” and a conviction being received, which may be different.

- Lines 255-259 - The language is somewhat ambiguous and confflates offending
with being charged. In the last sentence of this paragraph, the language would be more accurate if it stated that “Considering all charges for violent offences, Indigenous people received 44.0% of all violent offence charges laid against the cohort (Lines 258-259).

- The statement that charge rates were highest in two age categories among Indigenous females is not entirely accurate, given that they are, as in the non-Indigenous group, higher among the 20-24 year old age group (this should also be reflected in the conclusions). It may be more fruitful to compare the 15-19 year old age categories of Indigenous and non-Indigenous groups if the authors wish to highlight that charge rates are high among teenage females.

- Line 283, the statement of “at least one day” should be “greater than one day” based on the inclusion criteria. It would also be interesting to include comparisons of the number of episodes and length of episodes in order to flesh out the data in this section.

- Line 311 – 316 - shouldn’t this be date of first charge rather than age of first offence? It isn’t clear the value of looking at the relationship of OST entry following the date of first charge since this may be more usefully examined by looking at the time following the initiation of use, unless there is a significant rationale for the relationship between offending and OST initiation.

Discussion

- While the discussion refers to repeat offending, there is little information in the results on repeat offending in the data (Lines 332-333).

- Lines 332-333 - The argument that recidivism is common among Indigenous offenders and has been attributed to the over-representation of indigenous people in contact with the criminal justice system is quite tautological and warrants additional explanation.

- The attribution of increases in charges/offending in 2001 to a heroin shortage is not fully explained – i.e. did the shortage increase prices?

- Line 350 – it is doubtful that Indigenous violent offenders frequently make further contact with the criminal justice system, but rather come into contact owing to recidivism or re-offending.

- Line 354 – should this not read,z “the relationship between illicit drug use and violent crime is less clear”?

- Lines 358-9 – the construction that “violence was reported to have a strong presence among drug markets” is an awkward grammatical construction and unclear.

- Lines 386-7 extrapolate outside the results of analyses. That is, in order to make the claim that over-representation of Indigenous people in custody may be due to greater contact among people who are opioid dependent it would be necessary to compare incarceration rates between opioid dependent vs. non-dependent individuals, which the current study does not do.

- Lines 394-5 that highly the extent of complexity of disadvantage does not really follow the description of simple rates of imprisonment rather than the contributors
to these rates.
- Line 403 - It isn't clear why OST initiation in custody may contribute to higher levels of imprisonment for acquisitive crime – this seems more to point to the fact that Aboriginal individuals may be less likely to initiate OST outside of custody.
- Line 430 – it isn't clear what is meant by “rates of participation in the community are proportional in Australia and worldwide), which suggests that results are consistent with other populations.

Conclusions
- Line 457 – rather than a “history of opioid dependence”, this should be more accurately described as people with a history of both OST and criminal justice system involvement.
- The conclusion lacks a description of how the underlying reasons for differences in under-utilization of treatment among Indigenous people in the community and the compound disadvantage of Indigenous people with opioid use disorders can be addressed.

Discretionary Revisions
- The conclusion of contact with the criminal justice system providing an important opportunity to engage Indigenous people in OST seems to gloss over the apparent shortcomings of the out-of-custody system (lines 73-74).
- It would be helpful to have a parallel example of specific disease burden statistics/health inequalities among Indigenous people who use drugs in Australia to complement the Canadian example (lines 91-92).
- The first paragraph on page six would benefit from an additional statement about the need to resolve the ambiguity in results from previous studies of OST retention rates among Indigenous Australians (line 116).
- It isn’t clear that there is much added by breaking down theft and related offences (which are not outlined in the definitions section) from property offences (which are clearly outlined in the definitions section) given the similarity in their rates (Lines 248-250).
- It isn’t clear why the year of charge patterns might be relevant or why it is examined here – only in the conclusions does this become apparent. It may therefore warrant a rational for examining charges by year earlier in the paper.
- In the OST treatment utilization section, how might treatment be related to being released from custody? Is it possible to look at the dates of custody release and see if they correspond to dates of treatment discontinuation (Lines 297-301)
- On line 341/2, another reason why individuals resort to acquisitive crime is due to exclusion from licit forms of income generation.
- It would be helpful to have references to support the claim that the risks for needle sharing and transmission of blood borne viruses are higher among Indigenous people (line 398).
- For the paragraph beginning on line 411, rather than conclude that short sentences do not provide enough time to achieve stabilization (a statement whose implications of longer sentences being more beneficial is highly problematic) this more points to the lack of continuity of care for OST following release from prison and the need for culturally appropriate addition treatment.
- The limitations section would benefit from some discussion of accounting for loss-to-follow up because of migration outside NSW or other reasons why individuals may no longer appear in the data sets.
- The strengths and limitations section also misses an opportunity to draw attention to the population level, long-term data used in the study.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests.