Author’s response to reviews

Title: The Price of Personal Mobility: Burden of Injury and Mortality from Personal Mobility Devices in Singapore - a Nationwide Cohort Study

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Author’s response to reviews:

Dear Editor,

Thank you for the opportunity to revise our paper, and appreciate the constructive comments from our reviewers. Our detailed response to reviewers is provided below. The clean manuscript has been uploaded.

Yours faithfully,

Ting Hway Wong

On behalf of all authors

Detailed Response to Reviewers

Editor Comments

Ethical approval. The statements on ethical/IRB approval are different in the main text and Ethics Approval and Consent to Participate section. In the main text it is stated 'Institutional review board approval (or approval for exemption from full review, for sites where specific criteria for use of de-identified data was met) was granted at each of the respective sites. In the Declarations section it is stated Ethical approval was not required as only secondary retrospective and de-identified data was used.
Could you clarify this please? Please see the following for more information:
https://www.biomedcentral.com/getpublished/editorial-policies#ethics+and+consent

Response

We apologise for the confusion, and have made the appropriate changes.

To clarify, ethical approval by the corresponding author’s institution’s institutional review board was granted, with waiver of informed consent granted as only secondary retrospective and de-identified data was used.

We have aligned both the main text statements and the declaration section statements.

Lucie laflamme (Reviewer 1)

First paragraph - The tile promises more than the paper provides. If the study is on "personal mobility", one could claim that comparison of the results with other studies considering other "specific types of PMDs" actually is relevant, not least if the interest is individual attributes. My point is that, under the umbrella of "personal mobility", gaining knowledge on those riders of PMDs sustaining severe injuries across studies is an information of interest. Are they always the same or do they differ?

Response

We thank the reviewer for bringing up this point, and we agree with the idea that comparison of the riders’ characteristics between different types of PMDs would be of interest.

We had intended for that line to differentiate our study (capturing all PMDs) as opposed to that of international studies (capturing data from a much narrower PMD user population only).

We do understand that it was ambiguous in meaning, and have made the necessary adjustments:

“Similar descriptive studies internationally have focused on specific types of PMDs, allowing for between our population and the users of different types of PMDs.”

(page 11, Line 12)

We would like to highlight that we did consider PMD user characteristics between our study compared against international studies in paragraph 3 (Page 12, line 6).

Fourth paragraph - The explanations as to why "old age" is associated with higher admission injuries are very limited and no references on the topic of RTI severity and age appear. There is a
body of knowledge on that topic that must be taken into consideration and explanations relate not only to the risk of crash but also that of being more severely injured because of a crash or taking more time to recover. This having been said, the age group 60+ is a very broad category if specific explanations are to be raised, including musculoskeletal disorder.

Response

We thank the reviewer for this comment, and have expanded the fourth paragraph (page 12, line 16 onwards) with more detail regarding age, frailty and injury severity.

In addition, the reviewer comments on age made us realize that we omitted this point in our initial draft:

Older riders are probably choosing to ride Mot-PMDs to overcome their pre-existing musculoskeletal problems, and these patients may be more frail than younger patients to begin with.

We have added this line to our discussion.

Fifth paragraph - lacks references.

Response

We have added in references as appropriate, thank you.

Seventh paragraph - as the study is on severe injuries, mentioning under-reporting of non-severe injuries as a limitation is not relevant - this is not what the study is about. Rather, the limitation would be that the pattern seen in here may not fully apply to less severe injuries.

Response

We thank the reviewer for highlighting this, and in fact, the problem is that our findings may not apply to riders who do not present to hospital (as our study did include riders with minor injuries as long as they presented to the hospital emergency department).

We have thus amended it: (page 14, line 9):

Another limitation is that the NTR only captures data for patients who present to the emergency department of public hospitals, and hence our study findings may not apply for riders who self-medicate or see their family physician.

Conclusions
The conclusions are a mix of "answers to the research questions", "explanations to the answers" and "what future studies are needed". The last two points do not really belong to the conclusion and are not supported by the data at hand. Eventually, they can be moved to the discussion.

Response

We thank the reviewer for the comment, and have tidied up the conclusion accordingly.

Reviewer 2

From a reader's perspective, the acronym PMD is very easy to see, but it is much harder to pickout the motorised vs non-motorised labels, so I suggest that you label them MPMD and NMPMD (or something like MotPMD and NonPMD).

Response

We apologise for the difficulty in reading, and have taken the suggestion to revise the labels to MotPMD and NonPMD.

Introduction

L7 "Reasons for increasing risk of injury" - the previous para is about the growth in numbers of injuries, not the risk of injury, and would be explained by greater uptake (exposure). This para also starts to talk about PMDs as if they are all motorised, whereas a key part of the analysis is to distinguish between motorised and non-motorised PMDs. Really the first sentence (L7-8) doesn't make much sense in the context of the paper, and the next only makes sense if you introduce the implications of the distinction between motorised and non-motorised PMDs. I don't think this is done at all, it just appears without comment under "Covariates" in the Methods section.

Overall the Intro is very short and has little scene-setting information.

Response

We thank the reviewer for this comment, and have rewritten the introduction to be more explicit regarding motorised and non-motorised PMDs.

Methods

As a reviewer I want to know why I would think NTR was a good data source - is there evidence of its completeness, and the quality of its data? Reference to "seven public hospital trauma units" also doesn't make sense - taking too much for granted
Response

We apologise for the assumption, and have expanded on the National Trauma Registry.

(page 5 line 7)

“The NTR covers all public hospitals in Singapore, with coding and data collection conducted by trained trauma data coordinators with annual data quality checks (covering accuracy, reliability, completeness and validation) performed annually. Quarterly review of data capture is performed by the National Registry of Diseases Office.”

Also you mention ISS>9 and give a 1976 paper as the reference - which I assume is for the ISS, not the justification for 9 as a cut-off point. Why 9?

Response

We thank the reviewer for highlighting that we need to add a brief explanation and relevant citation for readers unfamiliar with injury severity definitions.

The Injury Severity Score of 9 has been used as a cut-off in trauma severity scoring in many trauma databases and registries, and we have added a more recent citation to support this.[1]

Results

In the Descriptive Analysis, it states that there were 618 patients considered, then says 4 pedestrians were excluded; two issues here - first, as they were not users of PMD they should have been excluded along with pedal cyclists, roller bladers and the motorised wheelchair user; second, it should also be stated that 42 patients whose PMD type was undocumented were excluded from the motorised vs non-motorised PMD comparisons (of 572 patients), but included in the overall descriptive analysis (of 614 patients).

Response

We thank the reviewer for pointing this out, and have made the amendments in the methods section. For completeness, we have also explained our decision to limit our analysis to PMD riders only, even though technically pedestrians injured by PMDs also contribute to the burden of injury:

(Page 6, line 14)

“Although pedestrians injured by PMDs would contribute to the burden of injury by PMDs, the data collection definitions for pedestrians injured by PMDs had not been standardized across the sites at the time of this study, as the NTR categories had focussed on PMD riders, hence we excluded pedestrians injured by PMDs.”
"Multivariate" is typically used rather than "Multivariable"

Response

We request to keep the term “multivariable regression” in our paper, as our analysis was for the regression of a single outcome, whereas multivariate analysis refers to the regression of multiple outcomes at the same time.[2]

Discussion

Proportion requiring surgical intervention - significant compared to what?

Response

We thank the reviewer for pointing this out. We have rephrased this to “… a greater proportion requiring surgical intervention compared to Non-M-PMD users”

(page12 line7)

I found it very strange that the association of age with severity of injury was attributed to slower reflexes. It is well-established that ageing is associated with loss of bone density and slower healing, and this increase in injury severity with age is routinely seen in road crash victims, whereas the involvement of slower reflexes is rather speculative.

Response

We thank the reviewer for pointing this out, and have corrected this paragraph discussing age, frailty and severity of injury.

(page12 line 18)

Tables

As per my comments above, Table 1 will need amendment, which will change the figures. Tables 2 and 3 are presented without mentioning any sample sizes - it would help in interpretation to include them.

Response

We thank the reviewer for the comments regarding the tables, and have corrected the figures as per above amendments and included sample sizes for Tables 2 and 3.