Author's response to reviews

Title: How do motorcyclists manage mental tensions of risky riding? A qualitative study

Authors:

Shahrzad Bazargan-Hejazi (shahrzadbazargan@cdrewu.edu)
Fereshte Zamani-Alavijeh (f_zamani_a@yahoo.com)
David Hindman (davidhindman@cdrewu.edu)
Esa Mohamadi (esamohamadi@yahoo.com)
Mohsen Bazargan (mohsenbazargan@cdrewu.edu)

Version: 3 Date: 10 June 2013

Author's response to reviews: see over
Dear Prof Senserrick,

Thank you very much for giving us a chance to improve on manuscript based on your respective reviewers’ comments. We have now concluded our revisions that required Major modifications and they are reflected as Underlined Text in the main document, and are listed below as well:

Reviewer’s report:
This is an interesting article addressing an important issue. It takes a novel, yet appropriate direction in using cognitive dissonance to understand discordance with motorcyclists’ attitudes and behaviour. However, the paper suffers from some major flaws, which require serious attention before publication can occur and I suggest the following major compulsory revisions:-

Reviewer A
Q.1. Grounding of the article in previous literature. There needs to be more discussion in the background drawing on research on attitudes to road user safety for motorcyclists. In particular, there needs to be far more justification for why cognitive dissonance of motorcyclists is an important issue to examine. What led the authors to believe that there is a discordance between motorcyclist attitudes and behaviour? I would suggest there needs to be greater drawing on previous literature in this section, perhaps see Musselwhite et al (2012) (Musselwhite, C.B.A., Avineri, E., Susilo, Y.O. and Bhattachary, D. (2012). Public attitudes towards motorcyclists’ safety: A qualitative study from the United Kingdom. Accident Analysis and Prevention, 45, 105-113.) or Simon Christmas’ work both which used qualitative data to examine how motorcyclists articulate their work (Christmas, S. 2009. Passion, Performance, Practicality: Motorcyclists’ Motivations and Attitudes to Safety. Department for Transport Report. Christmas, S., Young, D., Cookson, R., Cuerden, R. 2009. Passion, Performance, Practicality: Motorcyclists’ Motivations and Attitudes to Safety. Transportation Research Laboratory Report (PPR442). TRL: Crowthorne, England.)
Authors’ Response
Indeed we found this reviewer’s suggestions extremely helpful and accordingly we have revised the Background, Results, Discussion, Conclusions, and Future directions part of the manuscript to reflect our attempt in identifying categories of motorcyclists based on their risk bias and rationalizations for risky riding.

Q. 2. Justify the methods used. A qualitative technique seems appropriate for the study, but some discussion as to why it is appropriate is needed. What does it do that a quantitative survey couldn’t achieve? What are the limitations of the chosen approach and why should we live with them?
Authors’ Response:
Although a qualitative approach may limit the reproducibility of our results, we are not aiming to identify a list of reliable and significant factors that could predict variations in behavior, as is the case in quantitative approaches. Instead, our goal is to gain an in-depth understanding of the cognitive contexts and rationalizations behind these variations in behavior. Nevertheless, in this paper we have utilized criteria and methodology that enhances the scientific rigor of our work while serving to minimize the inherent limitations characteristic of qualitative approaches.

Q. 3. Internationalisation. The article needs to be set within an International context for the reader. Fine to use Iran as a case study, but how far might results be unique to this country and what, if anything, might be generalised for other countries and why.
Authors’ Response:
Absolutely, although research indicates that risky riding is not unique to Iranian motorcyclists, but the underlying reasons for it, to some extent, is. We have addressed this issue in the manuscript. Following is a sample of texts we included in the manuscript.

Background:
Road traffic injuries (RTIs), especially those involving motorcycles, are a significant concern in Iran where RTIs are the leading cause of unintentional injuries [7-10] with approximately 70 estimated deaths per day [11, 12]. In 2005, motorcycles made up about 40% of the country’s registered vehicles, commonly used by men [13]. In the capital city of Tehran alone there were more than 2 million registered motorcycles in 2003 [13]. Empirical data shows that motorcyclists in Iran have less favorable attitude toward safety riding measures and are more likely to normalize risky riding [14, 15]. Government reports estimate an upward trend in the number of registered vehicles in Iran, and warn of their high contributions in RTIs and road traffic fatalities [16].
Despite ample evidence establishing risks factors for RTIs among motorcycle riders in Iran [15, 17, 18], little is known about motorcyclists’ specific thought processes and risk biases with regard to risky riding. The majority of the public believes that the motorcycle is the least safe mode of transportation [19, 20], with available statistics verifying this assertion [21]. However, an increasing number of road user safety research studies have concluded that motorcyclists have a different perception of safe-riding or accept different levels of risk from the rest of general public [19, 22].
Discussion
In Iran, like many other countries in the region, use of motorcycle as a mean of transportation is quite common and is expected to increase [13, 14]. According to the available estimates from WHO, motorcycle related injuries will continue adding to the burden of injury in Iran, unless appropriate actions are taken [41]. Zamani et al, in an earlier study reported that regardless of the motivation for use, and regardless of the rider’s socio-economic class, the prevalence of traffic-law violations among Iranian motorcyclists is high [42]. Given that the perception of risk and traffic behaviors (including risky riding) vary in different socio-cultural contexts [15, 22, 43, 44], this study aimed to explore how Iranian motorcyclists, regardless of being aware that risky riding can result in injuries or deaths, justify their biases towards risky riding.

Of the approximately 68 million people living in Iran, approximately 24 million (33%) are 20 to 34 years old [58], and by popular belief seeking enjoyment and excitement is viewed as a normal part of being young[59]. Considering the documented greater risk taking behaviors in younger motorcyclists [17], their perceived invulnerability, misperception of risks, and unwillingness to use protective gear [60, 61], as well their bias regarding risky riding identified in this study, there is a particular need for continual attention to the risk-taking behaviors of young motorcyclists in Iran.

Future directions
Currently in Iran, riders who violate traffic laws, depending on the degree of violation, are subjected to monetary fine, imprisonment, or having their license seized or suspended. Our findings suggest that Risk Takers may have fewer worries about having their motorcycle confiscated since these riders value the motorcycle for seeking pleasure and thrills, while Risk Utilizers who have a more utilitarian view of their motorcycle may have different view of the punishment. Large scale observational studies are need to report level of readiness of riders with different risk bias to safety riding, and identify what it takes for these riders to adopt safe riding.

Q. 4. Recruitment. How were the participants recruited – door-to-door? On the street? How did the participants self-define themselves as risky? Was it simply a question that was asked? How was risky defined? A risk to themselves? To others? Taking risks? Were examples given?

Authors’ Response:
We added the following text to clarify this issue in the manuscript.
Data collection and analysis were initiated, on the street, in Ahvaz and continued until we reached data saturation. Subsequently, we continued with purposive sampling in Tehran (the Capital) and Isfahan (another major city in Iran) to confirm data saturation.

Once potential participants were identified they were asked; 1) if they were 18 years of age or older; 2) if they were living in one of the three cities of Ahwaz, Tehran, or Isfahan at the time of the study, and 3) if they consider their riding a risky behavior. ‘Risky behavior’ was defined as a behavior that would increase the likelihood of injury or death to them or others.

Q. 5. Details of the sample. Would be helpful to have details of age, gender and amount of motorcycling done. Could place a table in the methods section.
Authors’ Response:
Regretfully, we did not collect information about the amount of riding, however, added this as a limitation to our study findings. Motorcycling in Iran is almost entirely a male activity and for this reason in this study we only recruited male motorcyclists. However, we added the following Table to clarify locations of the participants.

Table-1: Numbers of participants in focus groups and in-depth interviews

<table>
<thead>
<tr>
<th>City</th>
<th>Focus Group (Participants)</th>
<th>In-depth Interview (Participants)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ahvaz</td>
<td>3 (15)</td>
<td>5 (4)</td>
</tr>
<tr>
<td>Tehran</td>
<td>1 (6)</td>
<td>2 (2)</td>
</tr>
<tr>
<td>Isfahan</td>
<td>1 (5)</td>
<td>2 (2)</td>
</tr>
<tr>
<td>Total</td>
<td>5 (26)</td>
<td>9 (8)</td>
</tr>
</tbody>
</table>

Q. 6. Need to know who said what in the findings. Quotes in the findings section should contain attribution with details of who said them, age, gender, amount of riding. Authors’ Response: We have added the age of the participants following their quotations in the results.

Q. 7. Data does not support inferences made in the findings. No evidence is really presented that the participant’s ‘over rated’ their riding behaviour. Moreover, examples of confidence are presented, there is no evidence that these riders are not as good as they report? Following on from this, the discussion does not stem from the findings – e.g. “the motorcyclists perceived themselves to be superior to other riders in respect to riding talents, skills, and vigilance” – there is little data presented in the findings to support this claim, apart from two minor comments at the end of ‘over-rating one’s perceived superiority’ section. More careful attention to the sub-heading, perhaps eliminating ‘over-rating’ and concentrating more on confidence of riders, rather than just superiority. Authors’ Response: We have revised the entire Results section to describe categories of riders with different risk biases and justifications for risk riding. Accordingly, we have revised nearly the entire Discussions and Conclusion to make sure they are in line with and support inferences we made from the results. Please see the underlined sections in “Results”, “Discussion”, “Results”.

Q. 8. The findings could be said to be categorising the riders. Are the findings actually categories of rider, rather than themes found amongst the data? If so, some discussion and description is needed to highlight this approach. Again see Simon Christmas’ work on categorizing motorcyclists by attitude and behaviour. Again, this could be evident in the 2nd category a whole category/theme presented. The importance of the motorcycle to fulfil utility needs is a separate issue to attribution of previous crashes to inattention,
yet both are presented together. Hence, this seems to be a category of motorcyclists rather than a theme from the data and more discussion is needed about this. Also, if these categories of rider exist, discussion about how mutually exclusive membership of them is and whether there might be other categories present in other samples of the population.

Authors’ Response:
As mentioned above, we did exactly what this respective reviewer suggested and subsequently provided relevant discussions. For related texts, please see the “Results”, “Discussion”, and “Future directions” sections

Results: We identified four categories of motorcycle riders each endorsing a unique risk bias they employed to justify their risky ridings. The categories included: (1) Risk Managers who justified risky riding by doubting that it would result in negative outcomes if they are competent riders. (2) Risk Utilizers who justified risky riding as functional and practical that would enable them to handle daily chores and responsibilities more efficiently. (3) Risk Calculators who justified risky riding by believing that it will help them to avoid road crashes. (4) Risk Takers who justified risky riding by arguing that risky riding is thrilling and brings them peer recognition

Q. 9.. Quantitative terms used. Authors need to limit the amount of quantitative terms (e.g. ‘some’ or ‘majority’) when presenting qualitative data with a small sample. Please revisit article and reduce unnecessary quantification.

Authors’ Response: Done

Q. 10. The discussion is interesting and draws appropriately on previous literature, but some of this literature should have been introduced in the background section and there needs to be careful distinctions made between literature that looks at driver behaviour and literature that looks at rider behavior

Authors’ Response: Done. We integrated the works of Christmas 2009; Musselwhite (2006-2012), Germeni, (2009) and more in the Background section.

Q. 11. Interventions. In the conclusion, it would be useful to discuss in more depth potential interventions aimed at improving motorcyclist behaviour in light of what has been found.

Authors’ Response: Done. Following are some sample excerpts from the manuscript

Reducing the anticipation of experiencing negative outcomes by emphasizing one’s riding skills.
In this respect road safety interventions may benefit from active engagement of more competent riders in delivering road safety education and training to novice riders. The unintended consequence of this could be that this group may keep their own riding habits in check.

Replaced worries about risky riding by emphasizing the practicality of the motorcycle;
Therefore, safety interventions that focus on functionality of safe riding practice and safety gear could be enticing to these riders. Christmas reported that ‘use of safety gear’ was rated highly by the Riding Disciples in his study whose primary purpose in riding was to arrive safely. Similar to these riders, Risk Utilizers in our study do not seem to welcome risk and they are motivated to reach their destination safely because their work depends on it. So safety tips that enable these riders to function more effectively and safely could be attractive to these riders.

**Focusing on thrill of riding and having care free attitude towards risk**

This group of motorcyclists may benefit from interventions that address the impulsivity and emotional aspect of their riding [19]. The goal of interventions may involve developing an alternative ‘thrill’ to replace the one young riders experience from risky riding. Social marketing experts may be able to assist road safety advocates to identify alternative ‘thrills’ and/or effectively communicate possible consequences of risky riding that could facilitate changing current cultural norms that discourages safe riding among this group.
Reviewer B

Thanks authors interest conducting such study. Road traffic injuries is one of the most important public health problem in Iran. Among them motorcyclist have important role in most of injuries. However this study has several important points which should be clear before any decision.

First of all for me it is important that who is the principal investigator and conducted a qualitative study, which is time consuming and need his or her complete involvement in such study. Their background in the method section needs to be clear and how they can have agreement on the concepts with different background and different universities. Please clarify them in the method section. The following comments also needs to be clarify before any decision.

Abstract section

B. 1 What is your approach in the method for data analysis, i.e. content analysis, grounded theory? Please clarify it

Authors' Response: We chose grounded theory approach to conduct and collect data for this study. Grounded theory provides appropriate context to uncover the process of engagement in a behavior from the participants’ perspective

B. 2 The conclusion is not exactly in the line with aim of the study and should be reaching to your aim of study. Moreover, your abstract conclusion is far from your main conclusion in the full text of your manuscript.

Authors' Response: We revised this section to accurately reflect our findings. Please refer to our response to the 1st reviewer’s query # 8.

B. 3 RTIs should be appeared in the first line when road traffic injury presented

Authors' Response: Done

B. 4 There is no need for Key words in the Open access journals, please leave them when readers can access the whole manuscript.

Authors' Response: Absolutely, but this is requested by the Journal and is often used for indexing in the PubMed or similar databases.

Introduction

B. 5 In overall, the introduction section is too long.

Authors' Response: We have revised this section extensively to make it tighter and more relevant to our study. However, since one of the reviewers asked for more relevant review on this topic we were not able to shorten this section.

B. 6. For me it is not clear that do authors want to test a theory, which is the nature of the quantitative method or do they want to generate a theory, which is the nature of qualitative method? The role of sub-heading of the Theory is not clear in the introduction section. Do you mean the theoretical framework? Please clarify it.
Authors’ Response:
We used this theory only to set the stage for exploring the psychology of risky riding. Cognitive dissonance theory provides an appropriate theoretical context in which to explore this question [26].

B. 7. Please use RTIs in the second line of introduction when road traffic injury is appeared for the first time.
Please use crash instead of accident in whole manuscript, except if participants use it in quotations.
Authors’ Response:
Done

Method
B. 8. In overall you need to be more details in your method, i.e. authors need to have sub-heading about the participants, data collection procedure, study area and some related information about that, data analysis, ethical consideration and so on. The method section of the qualitative research is extremely important.
Authors’ Response:
We have revised this section extensively to responds to all the queries by this reviewer. (Please see the Methods). We also added the following subheading to the Method section:

Trustworthiness
Several provisions were made by the researchers to enhance the credibility of the data [36]. First triangulation of data, i.e. use of both one-on-one in-depth interviews and focus groups compensated for each method’s individual limitations. Second, scrutiny and evaluation of the transcripts, codes and categories by bilingual members of our research team as well as colleagues outside of the research group ensured that the nuances of data are reflected in coding and added more feedback and fresh perspectives to the data. Third, the qualification and expertise of our research team, as well as their multidisciplinary background, were invaluable in collecting rich data and conducting reliable analysis [32, 39, 40].

B. 9. Please clarify this sentence “Data collection was directed by the principles of convenient purposive Sampling and data saturation”. It is not clear now.
Authors’ Response:
Data collection was directed by the principles of convenient purposive sampling and data saturation [28]. Convenient purposive sampling is a nonprobability sampling method that is used when researchers are seeking participants with specific characteristics that set them apart from the others. Data saturation refers to a point of ‘diminishing return’ to a qualitative sample. Specifically, it is a point in data collection process during the course of a study that no new or relevant information emerges, or when the addition of more data does not add to the already collected information. These are the suggested methods in qualitative studies that allow for richer analytic generalizations [29].

B. 10. I think you don’t need this sentence “These are the suggested methods for designing qualitative studies where researchers commonly use non-probabilistic samples and richer analytic generalizations [24].” And rather you need to clarify data analysis method in more details.
Authors’ Response:
We deleted this text and revised the data analysis to add more clarity to our approach.

Data analysis
Recorded discussions and interviews were transcribed verbatim in Farsi. Subsequently, we performed content analysis to identify meaningful units/phrases (manifest content) in the data. This process was performed using Wilms et al. methodology of “Coding Consensus, Co-occurrence, and Comparison” that is rooted in grounded theory [30, 31]. This methodology entails reviewers independently reading and rereading the initial verbatim transcript and identifying key sub-themes according to the participants' phrases (latent content) and performing initial coding. Initial codes then are compared and discussed among the reviewers and are categorized according to their similarities and differences [32-35]. Identified themes were then condensed further into broad themes. All subsequent transcripts were then coded utilizing this master codebook. Finally, the relationships among the broad themes were considered with a focus on their utility in operationalizing salient domains across individual interviews and focus groups. In addition to the aforementioned process, two experts outside of the study team, randomly selected sections of the transcripts and independently followed the aforementioned process to subsequently verify and resolve identified coding and thematic issues. The study team also met on a regular basis to ensure that the qualitative data analysis was systematic and verifiable, as recommended by the experts [36-38].

B. 11. In your introduction you focused on Tehran with giving information about that and in the method on three cities, please try to have some information about the two other cities in the introduction.

Authors' Response:
We chose these two major cities only to enhance the transferability of our findings. Addition of similar sites helped with the triangulation and saturation of our data. We provided the following brief description in the “data collection” and “study design”.

Data Collection
Data collection and analysis were initiated in Ahvaz and continued until we reached data saturation. Subsequently, we continued with purposive sampling in Tehran (the Capital) and Isfahan (another major city in Iran) to confirm data saturation.

Study Design
Although a qualitative approach may limit the reproducibility of our results, we are not aiming to identify a list of reliable and significant factors that could predict variations in behavior, as is the case in quantitative approaches. Instead, our goal is to gain an in-depth understanding of the cognitive contexts and rationalizations behind these variations in behavior. Nevertheless, in this paper we have utilized criteria and methodology that enhances the scientific rigor of our work while serving to minimize the inherent limitations characteristic of qualitative approaches.

B. 12. Moreover, please clarify why you choose these three cities? Why not just Tehran as the capital city of Iran.

Authors' Response
As mentioned above we choose Three major cities to confirm data saturation and not for the any particular characteristics of these cities.

B. 13. Who collected data from Isfahan, while there were no authors from Isfahan? I mean in the qualitative research and for its trustworthiness it is important that who involved in the data collection procedures, with regard to credibility.

Authors' Response
Identification and recruitment of study participants was carried out in the street and by the study PI (FZA) who has established record of performing similar studies [15, 17, 18]

B. 14. Why you just focused on age more than 18 years old? If you have drivers less that this age, it is important that they participate as interviewee. Please clarify it.

Authors’ Response:
This reviewer’s comment is well taken. But this was a study of adult motorcyclists and our goal was to focus on more matured group of riders than those who are eventually transit to adulthood.

B. 15. Please remove “Following recruitment” in the second paragraph of the method as you presented it twice.

Authors’ Response:
Done

B. 16. For me it is a question that why you conduct five focus group discussion with such aim. In such aim just two or three focus groups could be enough.

Authors’ Response:
We did so to reach the point of saturation and enhance the trustworthy of our findings.

B. 17. Moreover, please kindly move the ethical consideration at the end of the method section. Moreover, your ethical consideration is too long and could be shorter.

Authors’ Response:
Done as the following:
Ahvaz, Jundishapur University of Medical Sciences Ethics Committee approved the study protocol.

B. 18. Your questions, “1) what are your understanding of the risks involved with motorcycling? 2) What causes those risks? 3) Do you feel susceptible to those risks? 4) If yes, how do you manage or cope with the mental conflict/tension created by risky driving, and if no, how do you reconcile your perception of risks”. It seems that the researchers pushed the interviewee to the concept of the risk, while it was much better if it start with general questions and without any direction.

Authors’ Response:
“Risk” was the focal approach of this study; therefore, we chose certain study questions to explore risk bias of the participants.

B. 19. This sentence “The bilingual study investigators read the transcribed data several times and listened to the recorded interviews and discussions to establishing the trustworthiness of qualitative data [25]” belong to the trustworthiness of the study and should move from here.

Authors’ Response
Done. Please refer to the “Trustworthiness” section above.

B. 20. In addition this sentence “In addition, two experts from Outside of the study team randomly selected sections of the …” belong to the trustworthiness and not here.

Authors’ Response
Done. Please refer to the “Trustworthiness” section above.

B. 21. In the data analysis please be more specific and explain in more details about your way for data analysis. It is short now and you need to explain about coding, themes process and so on.

Authors’ Response:
Done. Please refer to the "Data analysis" section above.

Result
B. 22. In overall a huge parts of the result section is quotations by participants. This is especially true for the first heading “Over-rating one’s perceived superiority”. It seems that the authors themselves just relay on participants point of view. The authors should have their overall understanding from all materials first and give the readers their evidence using quotations. I recommend you have a look on the following article and presentation f the result section
Authors’ Response:
This section is now revised according to the suggestion of this respective reviewer. Each section now begins with the overall views of the authors, followed by the participants’ remarks.

B. 23 Using “The majority” more likely related to the quantitative method. You can for example say “most participants pronounced...”
Please kindly have all quotation to separate paragraphs.
Authors’ Response:
Done

B. 24. What motorcycle mean about “We are hardly protected against injuries”, while they are vulnerable road users?
Authors’ Response:
They meant they are at –risk for injuries. By “hardly” they meant ‘barely’.

B. 25. What do you mean about “immune” in the second paragraph of the result? Do you mean safe?
Authors’ Response:
We meant they felt protected, not at-risk, and invulnerable. We added this additional definition to the text: immune / invulnerable

B. 26. Researchers mentioned “One 17-year-old participant”, while in the method section your inclusion criteria were more than 18 years. Please clarify it.
Authors’ Response:
This was an oversight from our end. Thanks for noticing. We made the correction.

B. 27. In the first paragraph of the discussion you indicate on” These involved: 1) reducing the importance of the dissonant cognitions; 2) replacing the dissonant cognitions; and 3) rejecting the dissonant cognitions.” please give more evidence how you have it from your result section. As authors know they need to present their main findings in the first paragraph of the discussion section.
Authors’ Response:
This point is well taken. We have revised this section completely to address this reviewer’s suggestions as well the suggestions of the 1st reviewer. Please refer to the Discussion section for more details.

Discussion
In Iran, like many other countries in the region, use of motorcycle as a mean of transportation is quite common and is expected to increase [13, 14]. According to the available estimates from WHO, motorcycle related injuries will continue adding to the burden of injury in Iran, unless appropriate actions are taken [41]. Zamani et al, in an earlier study reported that regardless of the motivation for use, and regardless of the rider’s socio-economic class, the prevalence of traffic-law violations among Iranian motorcyclists is high [42]. Given that the perception of risk and traffic behaviors (including risky riding) vary in different socio-cultural contexts [15, 22, 43, 44], this study aimed to explore how Iranian motorcyclists, regardless of being aware that risky riding can result in injuries or deaths, justify their biases towards risky riding.

B. 28. Again please use crash or collision instead of the accident.

Authors’ Response:
Done

B. 29. In this section “Another group of participants alleviated the mental anxiety...” what do you mean about another group of participants?

Authors’ Response:
We have taken out this text and used labels based on our categorization of the motorcyclists; such as “Risk Takers”, “Risk Utilizers”, etc.

B. 30. You have tried to explain your limitations in the last paragraph of the discussion. Moreover, please avoid sample size in the qualitative research and use participants instead. Some of your limitation is not limitation; it is the nature of the qualitative research.

Authors’ Response:
Limitations

It is important to note that the generalizability of our findings is limited due the qualitative nature of the study. However, as is the purpose of all qualitative studies, we were able to engage our study participants in a collection of data that revealed their insights, detailed perspectives, experiences and views on risky riding. Our data limitations also prevent us from being able to report on the specific socio-demographic profile of our participants (other than their Iranian Ethnicity), their years of riding experience and their experiences with previous crashes. Finally, the risk bias and risky behaviors of the motorcyclists in our study are influenced by invisible social forces, i.e., social norms, which may be unique to Iranian culture. Therefore, caution should be exercised in the transferability of our findings to other cultures.

B. 31. Furthermore, you need to talk about the trustworthiness of your study such as credibility and so on, while I just find a bit in your method that should be moved from there.

Authors’ Response:
We have added the following text to the limitations of the study findings.

Despite these limitations, we used a number of strategies to enhance the study’s trustworthiness and credibility [62]. These include: 1) selection of two different methods of data collection and different sites to verify view points and experiences of the participants (triangulation); 2) employing a rigorous data collection protocol that supported saturation of the information collected (purposive sampling); and 3) using multiple reviewers to ensure adequate presentation and interpretation of the study data. In addition, this is the first study examining risk biases towards and justification for risky riding among motorcyclists living in Iran. In this respect, our findings add to and support the findings of others who highlight the important role that
motorcyclists’ accepted level of risk play in understanding their roads safety behavior in other countries [17, 63].

**B. 32.** In general your conclusion is too long and should be based on your aim or answering your study question. This conclusion is far from your abstract conclusion. The first paragraph of the conclusion is more likely to be similar with the discussion section. Please try to be more abstract in this part.

*Authors’ Response:*
*Absolutely, we think the revised ‘Conclusion’ is a much more improved depiction of our study findings.*

**Conclusions**

Findings of this qualitative study inform us of four seemingly different groups of rider with different underlying risk biases that justified or facilitated their risky riding behaviors. The groups include; Risk Managers, Risk Utilizers, Risk Calculators, and Risk Takers. The Risk Managers justified risky riding by doubting that it would result in negative outcomes if one is a competent rider. Risk Utilizers justified risky riding as functional and practical; facilitating daily chores and responsibilities. Risk Calculators justified risky riding behaviors that were calculative and believed helped to avoid road crashes. Risk Takers justified risky riding for its thrill and associated peer recognition.

Our findings suggest that a ‘one size fits all’ approach to enhance road safety practice among Iranian motorcyclists may not adequately address the unique characteristics of the subgroups within this population. Nevertheless, our results benefits road safety interventions that aim to find a right match between road safety messages, measures or incentives and the unique characteristics of groups of risky riders in Iran.

**B. 33.** The second paragraph is more likely to be a discussion part.

*Authors’ Response:*
*We took out such text and tried to present only concluding statements.*

**B. 34.** Why do you have reference in the conclusion while it is the gist of your massage of your study? “Iran, like many other countries in the region, will likely continue to see an expansion in use of motorized two wheelers [39].” Pleas kindly be more specific in this section.

*Authors’ Response:*
*We took out the references from this section.*
Reviewer C.

Minor Essential Revisions

C. 1. Spelling mistake in the last paragraph of the chapter titled "Rejecting the dissonant cognitions" (limitations paragraph): "reveals" instead of "reveal".

**Authors’ Response**
The entire manuscript has been re-read by all the authors, several times, to take care of any editorial mishaps.

Discretionary Revisions

C. 2. Clarification on the kind of in-depth interviews: were the interviews semi-structured or unstructured?

**Authors’ Response**
We used the following open-ended question for both in-depth interviews and focus group. So, the interviews were not structured in any particular manner.

To align study questions with study aims we used the following open-ended questions in the in-depth interviews and focus group discussions:

1) *what is your understanding of the risks involved with motorcycling?*
2) *What causes those risks?*
3) *Do you feel susceptible to those risks?*
4) *If yes, how do you manage or cope with the mental conflict/tension created by risky driving? In other words, how do you reconcile your actions with your perception of risks?*

*These questions were followed by probing questions in order to further engage participants to provide more thoughtful and detailed answers.*

C. 3. Clarification if pilot interviews were taken beforehand, followed by the production of an interview schedule.

**Authors’ Response**
We did not use any “interview schedule’ since the nature of the ‘interviews’ were open-ended.

C. 4. Some clarifications on the interview schedule (if there was one produced). Were the 4 questions presented in "Methods" paragraph suggestive or prescriptive?

**Authors’ Response**
We cannot say if we aimed to be “suggestive or prescriptive”. But we did have a focal purpose and that was to make sure participants give details views on the topic of “risk” as it relate to their bias and riding behaviors.

Do these 4 questions indicate the broad range of issues the interview intended to cover?

**Authors’ Response**
Yes, and they were followed by more flexible questions and prompts related to each area? As presented above: These questions were followed by probing questions in order to further engage participants to provide more thoughtful and detailed answers.

C. 5. Attached with the report a paper that you may consider relevant.

**Authors’ Response**
Thanks we integrated the information of this paper into our paper.