Author’s response to reviews

Title: First and second eye cataract surgery and driver self-regulation among older drivers with bilateral cataract: a prospective cohort study

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Author’s response to reviews:

Thank you very much for the helpful and supportive comments. We have addressed the comments below. Please note that page and line numbers refer to the version with track changes.

REVIEWER 1

Q1: Visual acuity should have been measured with habitual correction used while driving (if participant had one), but the manuscript does not provide specific information on this issue.

R1: Yes visual acuity was measured with habitual correction used for driving and has been added to methods section of the paper (p. 7, line 156) “Participants wore their habitual corrective lenses or glasses used for driving for visual testing.”

Q2: Seven days of recording naturalistic driving data is a very brief period of time by naturalistic driving study standards. Typically studies such as this that are focused on relating driver characteristics to driving assess driving over much longer period of time, such as months or years. One week of driving may not be representative of the participant's driving. This should be cited as a limitation of the study.

R2: We agree with the author and this has been clarified in the limitation section of the paper. The following information has been added to the discussion (p. 18 line 381): “Participants’ naturalistic driving behaviour was only measured for a period of one week meaning this may not be representative of their overall driving patterns…”
Q3: The manufacturer and model of the in-vehicle monitoring system should be stated in the manuscript. Readers will want to know what device was used.

R3: The following information was added to the methods section describing the in-vehicle monitoring device (p. 8, line 166) “A Geotab G06TM in-vehicle monitoring device with GPS log receiver was provided.”

Q4: How did the authors know for certain that the participant was actually the driver of the vehicle for all drives during the seven day period. This seems like a critical issue. Perhaps they used the diary but is it known how compliant participants were in recording their drives in the diary.

R4: Yes, a very good point. The following detailed information has been added to the methods section (p. 8, line 170) “The device can be easily inserted and removed and this was demonstrated to the participants. They were asked to disconnect the device if someone else drove the vehicle and move the device to any other vehicle they drove during the study period. Participants were also provided with a travel diary which was used to validate whether the participant was the driver of the vehicle for each trip. They were instructed to fill in the diary as soon as possible after the completion of each trip so their recall was accurate. Information collected included the type of vehicle driven, the number, age and position of passengers, purpose of the trip, date, start and finish time, odometer readings, trip duration and distance travelled. If they were unable to or forgot to disconnect the device when another person drove the vehicle, they were also asked to record this in the travel diary. After returning the device, each participant was interviewed to clarify any data issues, check their use of multiple vehicles and confirm whether there had been any other drivers of the vehicle while the device was connected.”

Q5: In discussing previous research on the impact of cataract surgery on driving exposure in the Discussion, the authors should also consider JAMA 2002; 288: 841-849, which suggested that driving exposure continues to decrease over the years post cataract surgery, much like it does for drivers who have cataract but do not elect surgery. Although the JAMA study used self report measures of exposure, not objective measures of exposure, the study looked at a much longer period of time (several years after surgery). The authors should consider whether the increased amount of driving in their own study was perhaps something like a "rebound" effect, meaning at first there were increased levels of driving and less self regulation in the period immediately following surgery, but that the study does not address the longer term impact on driving exposure and self regulation. The aforementioned JAMA study suggests that following surgery, exposure levels, in the longer term, follow the levels of those who did not elect cataract surgery.

R5: Thank you, this is a very good point and the following information has been added to the Discussion (p. 16, line 325) “However, an earlier study from the USA which followed cataract patients over a longer time period found that driving exposure (mileage) decreased over time in a similar fashion for those who had cataract surgery and those who did not [33]. It is therefore possible that decreased self-regulation observed in our study was perhaps a “rebound” effect with increased driving and less self-regulation occurring in the period immediately following
surgery. Our study was unable to address the longer term impact of cataract surgery on driver self-regulation and this warrants further research.”

REVIEWER 2

Q1: Samples: Is the sample randomly selected? What is the non-response rate?

R1: The sample was a convenience sample, recruited consecutively. This has been clarified in the methods section (p. 5, line 115). “A convenience sample of eligible participants were recruited consecutively from three public hospitals in Western Australia through two methods…” Response rate information has also been added (p. 6, line 118) “From 290 eligible patients invited to take part in the study, 111 participated (38%) and 55 of these completed all three assessments.”

Q2. Age distribution: consider combining 75-84 and 85+ into 75+ since the sample size is too small for 85+.

R2: Thank you, the age distribution for the 75-84 and 85+ groups have been combined into 75+ years and the analysis redone accordingly (Tables 1, 3 and 4).

Q3: Table 2: the visual acuity after the second eye surgery is negative. Can be the score below zero? not sure.

R3: Yes negative logMAR scores are correct. Negative scores just mean the visual acuity score is better than 20/20 vision (20/20 vision is 0.0 LogMAR).

Q4. Also Table 2: in the table note, the text "* significant at p<0.01" makes less senese since each p value is already shown in the table.

R4: This text has been removed.

Q5: Table 3: the Odds Ratio for aged 65-74 is 0.1 and 95% CI is 0.0-0.7, but p value is 0.116. These statistics are contradictory. Please double check it. To me, p value goes above 0.1 or above 0.05 only when the 95% CI of an odds ratios includes 1.0.

R5: Sorry for the mistake. The CI should have been written as 0.17. However this has been changed as the analysis was re-run to combine the 75-84 and the 85+ group.

Q6: Table 4: Some issue as for Table 3.

R6: Again, it was a mistake. The analysis was re-run to combine the 75-84 and the 85+ group.

Q7: Please proofread the entire paper, I spotted a couple of places with grammatical error.

R7: The paper has been proofread and all grammatical errors have been corrected.