

PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	More Aware, More Protected: A cross-sectional study on Road Safety Skills Predicting the use of Passive Safety Elements among Spanish Teenagers
AUTHORS	Useche, Sergio; Alonso, Francisco; Montoro, Luis; Garrigós, Leandro

VERSION 1 – REVIEW

REVIEWER	Rune Elvik Institute of Transport Economics, Oslo, Norway
REVIEW RETURNED	17-Mar-2019

GENERAL COMMENTS	<p>The paper reports on the user of passive safety devices by Spanish youth. While generally easy to follow, the paper would benefit from language editing.</p> <p>I believe the findings have too limited general interest to justify publication.</p>
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REVIEWER	Dr Catherine Purcell Cardiff University School of Healthcare Sciences UK
REVIEW RETURNED	04-Apr-2019

GENERAL COMMENTS	<p>Dear authors,</p> <p>I read with great interest your manuscript titled "More aware, more protected: road safety skills predicting the use of passive safety elements in teenagers". Overall, the manuscript adds some knowledge to the field and as such, it is worth considering some minor amendments, which I have detailed below.</p> <ol style="list-style-type: none">1. The abstract would benefit from re-wording in places, for clarity. For example page 2 lines 37 to 40.2. Likewise there are paragraphs within the introduction that would benefit from re-wording for clarity, for example the first paragraph (which also requires references).3. The statistics that you have included in the second paragraph of the introduction are positioned as global, but they predominately relate to the US - this needs to be made explicit as these statistics vary quite dramatically between countries
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	<p>4. Please avoid phrases like "It is a proven fact..." for example on page 3, line 50</p> <p>5. You predominately refer to car drivers and passengers, given that you explored helmet wearing / motorbikes, your introduction, results and discussion needs to differentiate between car drivers and passengers and motorbike drivers and passengers as both vehicle types have very different characteristics in relation to safety, risk etc.</p> <p>6. Although the majority of the correlations that you found were significant, the correlations themselves were generally weak - this needs to be fully discussed</p> <p>7. There are some areas of your results that require further clarification / information, for example: all of the specific modifications and constraints that were undertaken for the SEM</p> <p>8. In relation to your discussion relating to the second aim, rather than presenting a list of bullet points, these would be better explained in paragraph format in the context of previous literature</p> <p>9. You state that 'a few evidently acquiescent responses were excluded' - please provide detailed information as to how many responses were excluded and what the exclusion criteria was</p> <p>I hope these comments are helpful.</p>
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REVIEWER	Prof. Anna Maria Giannini Faculty of Medicine and Psychology, Sapienza University of Rome
REVIEW RETURNED	10-Apr-2019

GENERAL COMMENTS	<p>This paper presents an interesting subject intended to put forward the predictors of the Passive Safety Elements in teenagers. The study through SEM modelling, tries to demonstrate that the use of PSEs is largely explained by sociodemographic variables and three key road safety skills. Furthermore, multi-group (MGSEM) analyses have been used in order to verify gender-based differences.</p> <p>Minor revisions The paper is well presented and written. I found some 'slips'. You may find useful some suggestion below: -page 2 line 20: eliminate "for" (or add "Have been - involved" - in line 22); -page 2 line 39: add "at" - "Aimed at..."; -page 2 line 58: add "Could/ should" to "be addressed"; -page 4 line 22: "even worse"; -page 4 line 51: on the bright side- you can use a more formal register; -page 17 line 48: "Age. Has significant...", add "It "after the full stop. -page 17 line 58: Exposure to rse. Both- add "It" before "Both". -page 20 line 57: add "Could/ should" to "be addressed"; - page 7 line 12: it is "General Health Questionnaire", not "Global Health Questionnaire"-</p> <p>Major revisions Material and method</p>
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	<p>The questionnaire sections are not completely clear, in fact they are summarily described. For example, the measure of "Exposure to R.S. Education" is really simply the memory of having seen a campaign? It seems a very weak measure of exposure to a message. Why did you pose questions about the use of the mobile phone in the section/variable "Observed safe behaviours" if this it has nothing to do with PSE? Moreover, how many items have been used to measure the PSEs? This is not indicated. It would be better if we could examine the questionnaires themselves as supplementary materials.</p> <p>Description of the model The most critical issue in this paper is that the SEM models should result from a good internal logic, while here they seem to be obtained mainly by statistical findings. With such a large sample it is generally simple to obtain statistical significance. The theoretical model is missing in this study, at least it is not explicated. So, it is necessary to better describe the theoretical model that justifies the statistical findings. The comments on your SEM models lack completely of scientific citations: there are many studies on gender differences that could justify the differences that you found. For instance, in the section "Discussion and conclusion", you simply comment the statistical findings. As a result, the conclusions 'sound' too simple, sometimes elementary and never explained. In brief, at the present time the interpretation of data is still too scarce. You should develop and explore the matter more deeply.</p>
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VERSION 1 – AUTHOR RESPONSE

Reviewer # 2

Basic reporting

I read with great interest your manuscript titled "More aware, more protected: road safety skills predicting the use of passive safety elements in teenagers". Overall, the manuscript adds some knowledge to the field and as such, it is worth considering some minor amendments, which I have detailed below.

Response: First of all, thanks for your positive appreciation of the basic reporting of our manuscript. Below, you will find the adjustments and modifications performed in the paper after a careful revision of your comments and suggestions, and our responses to each one of them.

1. The abstract would benefit from rewording in places, for clarity. For example page 2 lines 37 to 40.

Response: As you suggested, we revised and reworded the abstract, focusing on the conclusive segment (lines 37-40), in which some information was difficult to be fully understood. Please find it in the revised manuscript.

2. Likewise there are paragraphs within the introduction that would benefit from rewording for clarity, for example the first paragraph (which also requires references).

Response: According to your suggestion, we carefully checked and rephrased the first paragraph of the introduction. It is true that some more clarity, precision and theoretical support were needed in this section of the manuscript. Thanks for your suggestion.

3. The statistics that you have included in the second paragraph of the introduction are positioned as global, but they predominately relate to the US this needs to be made explicit as these statistics vary quite dramatically between countries

Response: This clarification was included in two different sections of the introduction (second and third paragraph), to specify the origin and coverage of the provided statistics.

4. Please avoid phrases like "It is a proven fact..." for example on page 3, line 50

Response: According to your suggestion, we checked and rephrased this sentence.

5. You predominately refer to car drivers and passengers, given that you explored helmet wearing / motorbikes, your introduction, results and discussion needs to differentiate between car drivers and passengers and motorbike drivers and passengers as both vehicle types have very different characteristics in relation to safety, risk etc..

Response: Checked and amended. We revised this issue along the whole manuscript and made these clarifications where needed, adding some specific statistics that may enhance the context of PSEs in each one of these types of road users.

6. Although the majority of the correlations that you found were significant, the correlations themselves were generally weak - this needs to be fully discussed

Response: Since we agree with our reviewer on the need of discussing this fact, we included an additional paragraph in the section "Limitations of the Study" to point out this issue and its potential implication on data findings.

7. There are some areas of your results that require further clarification / information, for example: all the specific modifications and constraints that were undertaken for the SEM

Response: In this regard, we carefully revised the presentation of the findings, adding some key missing details and clarifying some issues that needed more information to be properly understandable by readers. Thanks for the comment!

8. In relation to your discussion relating to the second aim, rather than presenting a list of bullet points, these would be better explained in paragraph format in the context of previous literature

Response: According to your suggestion, we rephrased the set of bullets in paragraph format, adding some discussion about what is already supported by the previous literature. Thanks for this recommendation.

9. You state that 'a few evidently acquiescent responses were excluded' - please provide detailed information as to how many responses were excluded and what the exclusion criteria was.

Response: We checked and amended this paragraph, detailing the number of excluded cases and briefly explaining the meaning of the term ("acquiescent response") to the readers. Thanks for the observation!

I hope these comments are helpful.

Response: Thank you for your comments. We believe this review has been quite helpful to improve the structure, contents and quality of the paper!

Reviewer #3

Basic reporting

This paper presents an interesting subject intended to put forward the predictors of the Passive Safety Elements in teenagers. The study through SEM modelling, tries to demonstrate that the use of PSEs is largely explained by sociodemographic variables and three key road safety skills. Furthermore, multi-group (MGSEM) analyses have been used in order to verify gender-based differences.

Response: Thanks for your positive assessment of the manuscript. As you will find below, we carefully addressed each one of your comments and suggestions during our revision of the paper.

Minor revisions

The paper is well presented and written.

I found some 'slips'. You may find useful some suggestion below:

-page 2 line 20: eliminate "for" (or add "Have been - involved" - in line 22);

-page 2 line 39: add "at" - "Aimed at...";

-page 2 line 58: add "Could/ should" to "be addressed";

-page 4 line 22: "even worse";

-page 4 line 51: on the bright side- you can use a more formal register;

-page 17 line 48: "Age. Has significant...", add "It "after the full stop.

-page 17 line 58: Exposure to rse. Both- add "It" before "Both".

-page 20 line 57: add "Could/ should" to "be addressed";

- page 7 line 12: it is "General Health Questionnaire", not "Global Health Questionnaire"-

Response: According to your suggestions, we carefully revised all the suggested changes, amending them and tracking the corrections in blue in the revised version of the manuscript. Thank you so much for your exhaustive revision of the text!

Major revisions

Material and method: The questionnaire sections are not completely clear, in fact they are summarily described. For example, the measure of "Exposure to R.S. Education" is really simply the memory of having seen a campaign? It seems a very weak measure of exposure to a message. Why did you pose questions about the use of the mobile phone in the section/variable "Observed safe behaviours" if this it has nothing to do with PSE? Moreover, how many items have been used to measure the PSEs? This is not indicated. It would be better if we could examine the questionnaires themselves as supplementary materials.

Response: This response has two parts. Firstly, and regarding the issues pointed out for what concerns the questionnaire, it is worth explaining that:

- Based on the demographic features of our study population (e.g., age and educational level), we structured the instrument based on the short forms feasible to be understood by teenagers, as suggested by other empirical studies with similar age groups (Zelener & Schneider, 2016; Demetriou, Uzun & Essau, 2015). Thus, brief sets of questions (generally between 3 and 6 items) were used for measuring each study variable.

- The exposure to road safety education was related not only to the memory of having seen a campaign but to the perceived coverage, efficacy and influence of adolescents' safe road behavior (please see page 1 of the questionnaire annexed to the paper).
- Regarding the observed safe behaviors (parents), we found substantial evidence on the relationship between the safe/risky habits observed in parents and their children (please see page 6 - introduction, where we pointed it out for clarity). In this case, it was hypothesized that safe behaviors (including other ones, different than PSEs) of parents may influence the ones reported by teens. The core two reasons for including other behaviors were: first, that the variable we measured was the action of performing behaviors that contribute to explain positive road safety outcomes, such as the avoidance of mobile phones while driving (also correlated with PSEs); and, second, increasing the factor reliability through a brief checklist that includes key behaviors easily identifiable by participants.

Please note that the aforementioned methodological considerations have been already included in the revised version of our paper.

Secondly, since we agree with your comments and we also consider that the questionnaire could provide some additional value to the paper for the benefit of both reviewers and readers, we included it in the appendix of the article.

Thanks for this important set of comments!

Cited references:

Demetriou C, Uzun B & Essau CA. Self-Report Questionnaires. In Cautin RL, Lilienfeld (Eds.). *The Encyclopedia of Clinical Psychology*. New Jersey: John Wiley & Sons, Inc. 2015, pp. 1-4.

Zelener J, Schneider M. Adolescents and Self-Reported Physical Activity: An Evaluation of the Modified Godin Leisure-Time Exercise Questionnaire. *Int J Exerc Sci*. 2016;9(5):587–598.

Description of the model

The most critical issue in this paper is that the SEM models should result from a good internal logic, while here they seem to be obtained mainly by statistical findings. With such a large sample it is generally simple to obtain statistical significance. The theoretical model is missing in this study, at least it is not explicated. So, it is necessary to better describe the theoretical model that justifies the statistical findings. The comments on your SEM models lack completely of scientific citations: there are many studies on gender differences that could justify the differences that you found.

For instance, in the section "Discussion and conclusion", you simply comment the statistical findings. As a result, the conclusions 'sound' too simple, sometimes elementary and never explained.

In brief, at the present time the interpretation of data is still too scarce. You should develop and explore the matter more deeply.

Response: Our reviewer is right. Although we based the model on the theoretical-empirical basis addressed by the literature that we described in the introduction, the absence of a theoretical-based model that may be easily understood by readers was a pending issue to be amended. In this regard, we: a) included a graphical theory-based model at the moment of closing the introduction presenting the hypothesized results (please see page 7), and b) added more key empirical evidence to support the findings in the section "discussion and conclusions" (pages 17-21), thus improving the elaboration and comprehensive value of our data. Thanks for the suggestion!

VERSION 2 – REVIEW

REVIEWER	Dr Catherine Purcell Cardiff University, UK
REVIEW RETURNED	14-Jun-2019

GENERAL COMMENTS	<p>Unfortunately, although the revised submission is improved from the earlier version, my recommendation is to reject this manuscript for publication in BMJ. My specific feedback can be found below.</p> <p>Abstract</p> <p>The objective section states there are three road safety skills, but only two are listed and PSE should be written in full the first time that the abbreviation is used. The setting and participants section suggests that the study was framed in the paradigm of primary care – it isn't clear what this means. Furthermore, the sample includes a very large age range, which suggests that there will be large developmental and neurological differences which haven't been discussed in the discussion of the findings.</p> <p>Introduction</p> <p>There are many typographical and grammatical errors throughout the manuscript as well as generally awkward sentences, as a consequence the introduction lacks clarity making it difficult to follow at times.</p> <p>Method</p> <p>There is a general lack of consideration regarding the wide age range of the participants included in the study. There is no measure of risk taking in the sample, which means that inferences cannot be made between the results and a general measure of risk taking – this seems important given that we know that neurological changes occur in adolescents relating to frontal lobe re-wiring, which often results in more risky behaviour. The structure of the questionnaire isn't very clear and it appears to be</p>
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	<p>very long and as such some description of how fatigue effects were controlled for (e.g. reverse score questions) would have been useful. The General Health Questionnaire is not suitable for children so it isn't clear whether this was used with 12 year olds.</p> <p>Discussion</p> <p>The objective stated in the discussion and introduction seem to be different. Overall, the discussion doesn't add enough to the field to warrant publication in BMJ.</p>
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VERSION 2 – AUTHOR RESPONSE

Comments from the Reviewer:

Abstract

The objective section states there are three road safety skills, but only two are listed and PSE should be written in full the first time that the abbreviation is used. The setting and participants section suggests that the study was framed in the paradigm of primary care – it isn't clear what this means. Furthermore, the sample includes a very large age range, which suggests that there will be large developmental and neurological differences which haven't been discussed in the discussion of the findings.

Author Response:

- Contrary to the stated by our reviewer (“*there are three road safety skills, but only two are listed*”), you can see how we listed the full set of three Road Safety Skills (knowledge, risk perception and attitudes) in the first two lines of the abstract.
- As for the abbreviation (that was already spelled in the title of the paper), we included a second spelling of it at the first paragraph of the abstract.
- Further, problematizing about including a “large age range” we used for the study, it is worth mentioning that (e.g.) the standardized definition of the term “adolescence” ranges from 10 to 19 years, as stated by the WHO (World Health Organization) in: https://www.who.int/maternal_child_adolescent/topics/adolescence/dev/fr/. And our sample ranged, in fact, from 12 to 19 years.
- On the contrary than the reviewer stated, it could be a problem of validity and rigor to perform a study with *adolescents* by using, for instance, only teenagers of 14-15 years or very reduced ranges. This would be incorrect and reductionist! Thus, we believe it is conceptually better and more prudent to keep this kind of definitions in mind before criticizing the information presented.

Introduction

There are many typographical and grammatical errors throughout the manuscript as well as generally

awkward sentences, as a consequence the introduction lacks clarity making it difficult to follow at times.

Author Response:

- We agree with the reviewer on the fact that typos and grammar errors may be present in preliminary versions of papers. In this regard, we carefully revised the text for a second time, with help of a professional editor, that has been acknowledged at the end of the manuscript (please see *Acknowledgements*).

Method

There is a general lack of consideration regarding the wide age range of the participants included in the study. There is no measure of risk taking in the sample, which means that inferences cannot be made between the results and a general measure of risk taking – this seems important given that we know that neurological changes occur in adolescents relating to frontal lobe re-wiring, which often results in more risky behaviour. The structure of the questionnaire isn't very clear and it appears to be very long and as such some description of how fatigue effects were controlled for (e.g. reverse score questions) would have been useful. The General Health Questionnaire is not suitable for children so it isn't clear whether this was used with 12 year olds.

Author Response:

- In this point, our reviewer argued that there are not risk-taking measures in the study, while **this is not** a road safety skill but a behavioral indicator, and the single behavioral variable used in the study is (as suggested in specialized literature in the field) the dependent one, in order to avoid statistical endogeneity that, in fact, could be a Real problem for the validity of the study.
- Further, our reviewer affirms that GHQ is not suitable for being used in adolescents, while different studies have done it and the GHQ reference guide itself recommends it. Please refer to <https://www.gi-assessment.co.uk/products/general-health-questionnaire-ghq/> for confirming this information. Thus, and contrary to the stated by our reviewer, the test guidelines **suggest its use** with adolescents.
- Also, our reviewer mistakenly stated a quite inexact mean age for the sample for supporting this flawed affirmation. In this regard, we have to say that it was $M=14.39$ (and NOT 12) years, as we detailed in the section "Sample" (Page 7) and in Table 1.

Discussion

The objective stated in the discussion and introduction seem to be different. Overall, the discussion doesn't add enough to the field to warrant publication in BMJ.

Author Response:

- As for the first, rather than stating two different objectives, we tried to synthesize the purposes of the study to remind our readers what's the logic of the study. However, and as you requested, we checked this issue and amended it for this revision version of the paper, ensuring to develop the discussion in accordance with the two study aims (please see *Discussion*).
- As for the second, we would like to remind that, *Discussion* was "good" in the first version of the paper, but "bad" after performed a single modification suggested by you, that consisted on changing the form in which we presented the summary of our findings (i.e., to use a paragraph-based form instead of bullets).