

PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	Drunk driving: a secondary analysis of factors associated with driving under the influence of alcohol in Jamaica
AUTHORS	Lalwani, Kunal; Sewell, Clayton; Frazier, Gralyn; Abel, Wendel

VERSION 1 – REVIEW

REVIEWER	James Fell NORC at the University of Chicago
REVIEW RETURNED	10-Apr-2023

GENERAL COMMENTS	(1) Nice study. Appropriate methods and statistical analyses. Good presentation of the results. However, how can the results of your analyses be applied in efforts to reduce impaired driving? Other than the mention of SBI, no applications are presented. Please discuss how specific countermeasures can benefit from your study. Give examples. (2) On page 15 you state "...further research to construct appropriate reduction strategies and legislation..." What further research? Why can't you suggest evidence-based strategies that could be applied based upon your results? Please discuss. Think "Research to Practice." (3) Excellent list of REFERENCES, however, many are not complete. Just the author and title are listed for some, e.g., #3, #15, #20, #22, #44, #49.
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REVIEWER	Polathep Vichitkunakorn Prince of Songkla University - Hat Yai Campus, Department of Family and Preventive Medicine
REVIEW RETURNED	25-Apr-2023

GENERAL COMMENTS	Comments to authors bmjopen-2023-073529 Title: Drunk driving: a secondary analysis of factors associated with driving under the influence of alcohol in Jamaica Journal: BMJ Open The author aimed to determine the prevalence of alcohol use, sociodemographic factors and risk of alcohol dependence amongst vehicle drivers in Jamaica using the national data in 2016. As a reviewer, I have carefully evaluated your manuscript and would like to provide the following feedback: Major concerns - STROBE checklist: It appears that the authors did not adequately address all of the recommended items in the STROBE
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	checklist. Please review the checklist carefully and ensure that all recommended items are addressed in the manuscript in accordance with academic standards. - Sampling weights: The authors did not apply sampling weights in the analysis, which could affect the generalizability of the results. I suggest that the authors apply weighted analysis to ensure that their results are representative of the whole population of Jamaica. As of Monday, April 24, 2023, the current population of Jamaica is 2,997,358, based on Worldometer elaboration of the latest United Nations data - Data update: The data used in the analysis was not updated (i.e., 2016), which could potentially lead to inaccurate or outdated conclusions. To ensure the accuracy and relevance of the study, it is crucial that the authors use the most current data available and indicate the date range of the data used. - Model selection and assumption checking: The manuscript did not address the "Model selection" and "Assumption checking". Model selection is a critical step in ensuring the accuracy and generalizability of the results. Assumption checking is important because it assesses whether the assumptions underlying the chosen statistical model are met. I suggest that the authors perform appropriate diagnostic tests to check assumptions and address any violations that are detected to improve the reliability and validity of their findings. Overall, I believe that this manuscript has the potential to make a valuable contribution to the field. I hope that you will find my feedback helpful in revising your manuscript.
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VERSION 1 – AUTHOR RESPONSE

Reviewer: 1

Dr. James Fell, NORC at the University of Chicago

Comments to the Author:

Nice study. Appropriate methods and statistical analyses. Good presentation of the results. However, how can the results of your analyses be applied in efforts to reduce impaired driving? Other than the mention of SBI, no applications are presented. Please discuss how specific countermeasures can benefit from your study. Give examples.

Response: Our team of authors appreciates the suggestions and agrees with the reviewer that more applications and their rationale should be discussed based on the study's findings. Examples of other countermeasures highlighted include:

- a. Creation of a Drug Treatment Court model that focuses on treatment rather than a trial of the individuals with substance dependence, given the high rates of criminal activities due to being under the influence (1st paragraph on page 18).
- b. Use alternative transportation programmes, especially given the concept of all-inclusive recreation events similar to the party tourism concept, and its association with heavy alcohol use (2nd paragraph on page 18).
- c. Sobriety checkpoints, reducing speed limits in high pedestrian areas and creating a viable data collection mechanism (1st paragraph page 19).

On page 15 you state "....further research to construct appropriate reduction strategies and legislation..." What further research? Why can't you suggest evidence-based strategies that could be applied based upon your results? Please discuss. Think "Research to Practice."

Response: Evidence-based strategies that are applicable based on the findings of the study include:

- a. National education campaigns focusing on the detrimental influence of alcohol and cannabis co-use in young adults and males, significant factors in this study (final paragraph on page 14 extending into page 15).
- b. Amending legislation to reflect international best practices – reducing blood alcohol concentration from 0.08 to 0.05 g/dl. This allows for a lower threshold in identifying those drivers who are impaired, as well as screening for those that may be binge drinkers and alcohol dependent (1st paragraph on page 15).
- c. Increased driving under the influence fines will likely discourage the behaviour (1st paragraph on page 15).
- d. Increased taxation on alcoholic beverages (1st paragraph on page 15).
- e. Increasing the legal drinking age from 18 to 21 years (1st paragraph of page 16).

The suggestions put forward by the team of authors in response to comments 1 and 2 represent cost-effective strategies that may be helpful, especially in countries that are low and middle-income countries (LMICs), of which Jamaica is a participant.

Excellent list of REFERENCES, however, many are not complete. Just the author and title are listed for some, e.g., #3, #15, #20, #22, #44, #49.

Response: Thank you, corrections have been made, and references have been updated to reflect the additional discussion points.

Reviewer: 2

Dr. Polathep Vichitkunakorn, Prince of Songkla University - Hat Yai Campus

Comments to the Author:

STROBE checklist: It appears that the authors did not adequately address all of the recommended items in the STROBE checklist. Please review the checklist carefully and ensure that all recommended items are addressed in the manuscript in accordance with academic standards.

Response: Thank you for indicating the oversight. Given the revision to the manuscript, the STROBE checklist has been addressed accordingly.

Sampling weights: The authors did not apply sampling weights in the analysis, which could affect the generalizability of the results. I suggest that the authors apply weighted analysis to ensure that their results are representative of the whole population of Jamaica. As of Monday, April 24, 2023, the current population of Jamaica is 2,997,358, based on Worldometer elaboration of the latest United Nations data.

Response: The initial Jamaica National Drug Prevalence Survey 2016 utilized a stratified multi-stage sampling design of which the primary sampling units (PSU) were the Enumeration Areas (EAs). Sampling weights were applied to ensure that results generated from the dataset were representative of the national population. It is described in the first paragraph, under the subheading "Study Design, Sample Size and Data Source", of the methods section on page 5. Please see reference: Younger-

Coleman N, Cumberbatch C, Campbell J, et al. Jamaica National Drug Use Prevalence Survey 2016. Kingston: Ian Randle Publishers; 2017

Data update: The data used in the analysis was not updated (i.e., 2016), which could potentially lead to inaccurate or outdated conclusions. To ensure the accuracy and relevance of the study, it is crucial that the authors use the most current data available and indicate the date range of the data used.

Response: The authors agree with the reviewer regarding the age of the data. However, the Jamaica National Drug Prevalence Survey 2016 represents Jamaica's last national drug prevalence survey. The results of this research represent the first of its kind in Jamaica and provide a foundation for which further research may build, especially given the government of Jamaica's current undertaking of conducting another National Drug Prevalence Survey that was announced on the 1st of March, 2023. Please see below:

<https://intranet.moh.gov.jm/blogs/national-drug-prevalence-study-launched/>

The limitations addressed this point (2nd paragraph on page 19).

Model selection and assumption checking: The manuscript did not address the "Model selection" and "Assumption checking". Model selection is a critical step in ensuring the accuracy and generalizability of the results. Assumption checking is important because it assesses whether the assumptions underlying the chosen statistical model are met. I suggest that the authors perform appropriate diagnostic tests to check assumptions and address any violations that are detected to improve the reliability and validity of their findings.

Response: Thank you. This has been addressed in the paragraph under "Statistical Analysis" on page 8, by the following statement "Multicollinearity between the study variables was explored using variance inflation factor (VIF) (with multicollinearity being defined as $VIF > 2.5$) and Hosmer–Lemeshow statistic was used to test for goodness of fit of the regression model." Multicollinearity is addressed in the second paragraph of page 11 by the following statement "There was no multicollinearity found among the independent variables used in the analysis." The goodness of model fit is addressed in the first paragraph under "Estimation of odd ratios for sociodemographic factors associated with DUIA" on page 13, by the following statement "The Hosmer- Lemeshow test shows the p-value at 0.662 ($p > .05$), which shows the model fits the data."

VERSION 2 – REVIEW

REVIEWER	Polathep Vichitkunakorn Prince of Songkla University - Hat Yai Campus, Department of Family and Preventive Medicine
REVIEW RETURNED	28-May-2023
GENERAL COMMENTS	Great revision. No further comments.