PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	Prevalence of Diabetes Mellitus and Associated Risk Factors in Nepal: Findings from A Nationwide Population-Based Survey
AUTHORS	Shrestha, Namuna; Karki, Khem; Poudyal, Anil; Aryal, KK; Mahato, Namra; Gautam, Nitisha; K.C., Dirghayu; Gyanwali, Pradip; Dhimal, Meghnath; Jha, Anjani

VERSION 1 – REVIEW

REVIEWER	Shrestha, Nipun ABCD
REVIEW RETURNED	12-Jul-2021

GENERAL COMMENTS	Background: There are not enough rationales for this study. What are compelling arguments that warrants the need for this manuscript? • The methods resonates the survey conducted by NHRC, authors could cite the report and add what additional methods they have used for this manuscript. • More details about REMO software is warranted. Were validity and reliability of the tools used through the software measured? • The discussion is poorly written, particularly it does not add anything new to an existing body of knowledge. Authors could have explained each risk factor more in details, especially its relevance to local population rather than just comparing the findings with the existing literature. For instance, what do these findings mean to population in rural and urban areas, how could these residents be prevented from this major problem? More situation analysis is warranted. • I see authors acknowledge the limitations that life-style related factors are not included in the analysis. However STEPS survey has measured various lifestyle related factors like physical activity, alcohol consumption and socioeconomic variables (Wealth quintile) which have not been used as variables in preparing this manuscript. This is a major limitation that should warrant reconsideration. Without life-style related factors and socioeconomic variables, the inferences are incomplete. Although, this could be an opportunity for authors to explore what is missing and how it could have played a role in their inferences. Steps survey has also measured various other interesting outcomes like diabetes awareness, treatment and control. It's surprising to see authors did not consider presenting these variables in the manuscript. • Authors also preside in the policy platform of Nepal. This is indeed an opportunity and responsibility for/of authors to ensure how the outcomes of this study could be utilized to prevent the increasing epidemic of DM, in contrast to presenting the findings that are already available in national survey reports. It has to add to an existing body of knowledge.

REVIEWER	Alloubani, A
	King Hussein Cancer Center, Nursing Research Unit
REVIEW RETURNED	13-Aug-2021

| GENERAL COMMENTS | • Page 5, line 7-12: Need to provide citation support for all statements of fact that are not common knowledge. Would you please review and revise throughout the document? I suggest also updating the information about DM prevalence worldwide.
• I recommend adding the significance of the study to the introduction section
• Are there any exclusion criteria?
• Are there any reliability or validity values for the questionnaire?
• I suggest deleting some repeated sentences such as "Android phones inbuilt with data collection software (REMO)"
• Please don't repeat the result numbers in the discussion section |

VERSION 1 – AUTHOR RESPONSE

I accept to submit a revision.

VERSION 2 – REVIEW

REVIEWER	Shrestha, Nipun
	ABCD
REVIEW RETURNED	11-Nov-2021

| GENERAL COMMENTS | The authors have not addressed all the comments. They have not even acknowledged some of the comments.
The authors argument that the study provides the nationwide prevalence estimates and predictors of diabetes for the first time is not true. The first nationwide prevalence estimates were reported by Steps survey 2013, then this survey and the most recent estimates are reported by STEPS 2019. The prevalence estimates from STEPS 2013 and this survey has also been used in the pooled estimates by Shrestha et al in their meta analysis.
Shrestha, N., Mishra, S. R., Ghimire, S., Gyawali, B., & Mehata, S. (2020). Burden of Diabetes and Prediabetes in Nepal: A Systematic Review and Meta-Analysis. Diabetes Ther, 11(9), 1935-1946. doi:10.1007/s13300-020-00884-0.
This study has been identified as Selected NCDs 2019 by this meta analysis and it also reported prevalence estimates in subgroups from this survey and predictors of diabetes.
The authors have not addressed why they chose not to present diabetes awareness, treatment and control and its predictors. This would have been rather interesting and rather novel as it has not been addressed in any publication from Nepal until now. Please see the link to policy brief below which has reported awareness, treatment and control from this survey.
http://mosd.p1.gov.np/sites/mosd/files/2020-07/Policy%20brief_Diabeties.PDF?fbclid=IwAR1GYt0XkfW5Z0HrETQYecKH_4KU3iqMeByDiwmXVbwhJgl-9Ql8ABg52vQ
Diabetes awareness, treatment and control from STEPS 2013 and this survey has also been reported in meta analysis by Shrestha et al.
The authors have not acknowledged the most recent and more robust prevalence estimates from STEPS 2019 survey. The findings |

	of this survey needs to compared with the recent nationwide estimates from STEPS 2019. I also suggest authors to add following sentences to their limitation section. The findings of this study needs to interpreted with caution as more recent and robust prevalence estimates of diabetes are available from STEPS survey 2019.

REVIEWER	Alloubani, A King Hussein Cancer Center, Nursing Research Unit
REVIEW RETURNED	28-Oct-2021

GENERAL COMMENTS	The authors addressed all comments

VERSION 2 – AUTHOR RESPONSE

Comments during the second review by Reviewers:

Reviewer 2

Dr. A Alloubani, King Hussein Cancer Center

Comments to the Author:

The authors addressed all comments

Reviewer: 1

Dr. Nipun Shrestha, Victoria University

Comments to the Author:

1) The authors have not addressed all the comments. They have not even acknowledged some of the comments.

Response: We have addressed each of the comments and provided a point-by-point response to each of those comments in his first review was submitted during the revised submission.

2) The author's argument that the study provides the nationwide prevalence estimates and predictors of diabetes for the first time is not true. The first nationwide prevalence estimates were reported by Steps survey 2013, then this survey and the most recent estimates are reported by STEPS 2019. The prevalence estimates from STEPS 2013 and this survey has also been used in the pooled estimates by Shrestha et al in their meta-analysis. Shrestha, N., Mishra, S. R., Ghimire, S., Gyawali, B., & Mehata, S. (2020). Burden of Diabetes and Prediabetes in Nepal: A Systematic Review and Meta-Analysis. Diabetes Ther, 11(9), 1935-1946. doi:10.1007/s13300-020-00884-0. This study has been identified as Selected NCDs 2019 by this meta analysis and it also reported prevalence estimates in subgroups from this survey and predictors of diabetes.

3

Response: We do agree with the statement of the reviewer that 'The first nationwide prevalence estimates (of DM status with just fasting blood sample) were reported by STEPS survey 2013, and the most recent estimates are reported by STEPS 2019." However, these studies have only used fasting blood sample to report the prevalence. Other studies reporting the prevalence using both fasting and postprandial blood sample are limited to either selected district, hospital or only urban population not making a representative sample to generalize at national level. In contrast, this study used a standard method of fasting and postprandial blood sample (which we have claimed as first time to the best of our knowledge) to provide the prevalence covering all seven provinces and rural and urban population. We agree that the meta-analysis suggested by the reviewer have included the prevalence and subgroup analysis across only socio-demographic factors using the descriptive results reported in the report of the selected chronic NCDs 2019, but this paper presents a comprehensive analysis of the prevalence of DM at the national level as well as various subgroups considering other important behavioral and biological risk factors which is not included in the meta-analysis suggested by the reviewer. And subsequently this paper presents the factors (considering all these independent variables) associated with the occurrence of DM considering all relevant variables included in the study.

3) The authors have not addressed why they chose not to present diabetes awareness, treatment and control and its predictors. This would have been rather interesting and rather novel as it has not been addressed in any publication from Nepal until now. Please see the link to policy brief below which has reported awareness, treatment and control from this survey.

http://mosd.p1.gov.np/sites/mosd/files/2020-07/Policy%20brief_Diabeties.PDF?fbclid=IwAR1GYt0XkfW5Z0HrETQYecKH_4KU3iqMeByDiwmXVb whJgl-9Ql8ABg52vQ

Diabetes awareness, treatment and control from STEPS 2013 and this survey has also been reported in meta-analysis by Shrestha et al.

Response: We understand that diabetes awareness, treatment, and control could be an important topic. However, a study on diabetes awareness, treatment and control (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6214524/) has been carried out in Nepal and results have been published in 2018. Furthermore, as the reviewer himself suggested that findings regarding diabetes awareness, treatment and control from STEPs 2013 and this survey have been reported in the meta-analysis by his team. In this context, we thus wanted to take an opportunity to present the prevalence estimates resulted from fasting and post prandial blood sugar measurement (for the first time) along with a comprehensive analysis of factors associated.

4) The authors have not acknowledged the most recent and more robust prevalence estimates from STEPS 2019 survey. The findings of this survey need to compared with the recent nationwide estimates from STEPS 2019.

Response: Our apologies this was overlooked, and we would like to sincerely thank the reviewer for pointing this out which will ultimately increase the quality of the paper. With this acknowledgement, we would like to mention that we have included the latest fact from STEPS 2019 survey in the discussion section (Page:17, line number:189-90, Reference number:21) in the revised manuscript

5) I also suggest authors to add following sentences to their limitation section.

The findings of this study needs to interpreted with caution as more recent and robust prevalence estimates of diabetes are available from STEPS survey 2019.

Response: There is a huge difference in the methodology between these two studies especially on the measurement of blood sugar with a major uniqueness on adopting a fasting and post prandial blood sugar level to define prevalence of diabetes. Furthermore, this survey includes a strong design including sample design and biochemical measurements following all quality control procedures similar to other studies including STEPS surveys. Considering all the standard procedures we have followed; we believe that this study gives equally robust result as the STEPS surveys.