PEER REVIEW HISTORY

BMJ Open publishes all reviews undertaken for accepted manuscripts. Reviewers are asked to complete a checklist review form (**http://bmjopen.bmj.com/site/about/resources/checklist.pdf**) and are provided with free text boxes to elaborate on their assessment. These free text comments are reproduced below.

ARTICLE DETAILS

TITLE (PROVISIONAL)	Trends, prevalence, and risk factors in overweight and obesity among women of reproductive age in Bangladesh: a pooled analysis of five national cross-sectional surveys
AUTHORS	Chowdhury, Muhammad Abdul Baker; Adnan, Md. Mohiuddin; Hassan, Md Zakiul

VERSION 1 – REVIEW

REVIEWER	Stefania Triunfo UCSC, Rome, Italy
REVIEW RETURNED	12-Jul-2017

GENERAL COMMENTS	TRENDS, PREVALENCE, AND RISK FACTORS IN OVERWEIGHT AND OBESITY AMONG WOMEN OF REPRODUCTIVE AGE IN BANGLADESH, 1999-2014 In their epidemiological study, the authors aimed to determine trends in prevalence and risk factors of overweight and obesity among Bangladeshi reproductive age women during a 15-years period. From nationally representative data from repeated cross-sectional Bangladesh Demographic and Health Survey in 1999, 2004, 2007, 2011, and 2014, they found: 1. Significant increase of prevalence of overweight and obesity among reproductive age women, irrespective to the type of the area (urban vs. rural); 2. Association between age, education, wealth index, watching TV, and contraceptive use, and overweight and obesity in both urban and rural areas. So, they concluded suggesting the need to develop effective low cost strategies to mitigate the increasing burden of obesity. Although there are some important limitations (i.e., missing data about food intake, physical activity, etc; secondary cross-sectional analysis), as recognized by the same authors in the Discussion section, the study seems interesting and useful to direct appropriate lifestyle to selected age-classes and specific areas in developing countries, such as Bangladesh, in order to reduce both short- and long-term complications, associated to abnormal nutritional status in reproductive age. Additionally, it endorses the use of the ad hoc Asian-specific guidelines, able to improve the identification of changes in trends of prevalence of different BMI categories, in contrast to previous studies published in a similar setting. However, there are some methodological aspects to clarify and some amends to do: - The choice of years of the survey (1999, 2004, 2007, 2011, 2014) is not clear: do the authors explain it, please?

	- ABSTRACT (pag. 2, lines 22-24): There is confusion between measure and outcome: BMI is a measure and not primary outcome (=obesity, overweight…). - INTRODUCTION: In order to update references in adverse pregnancy outcome in presence of obesity, overweight and underweight, you can consider also as updated summary the reviews by Triunfo S, J Endocrinol Invest. 2014-2015 - METHODS (pag. 7, line 41): How do you define exactly the categories of wealth index? Please, to specify it. - RESULTS (pag. 9, lines 17-19): Kernel density estimation as a non-parametric way to estimate the probability density function of a random variable (BMI, in this study, Fig. 1), should be informative taking into account the normality. The Fig. 1 should be included also the standard normal distribution in order to appreciate the BMI density. Please, to reconstruct it. - RESULTS (pag. 10, lines 3-6): there is a crossover exchange between values attributable to rural and urban areas (21.09% instead to 29.74%). Please, to amend it. - RESULTS (pag. 11, line 29): "…with higher educational level…" is not consistent with Tab. 2. Please, to adjust it. - Some parts of the paper are not easy to understand due to English style (i.e., pag. 3, lines 12-13; pag. 5, lines 16-19; pag. 6, lines 36-46; pag. 8, lines 8-13; pag. 13, lines 9-13). Please, to check it.

REVIEWER	Romulo Fernandes Sao Paulo State University - UNESP, Brazil
REVIEW RETURNED	06-Oct-2017

GENERAL COMMENTS	In general, the manuscript has a large sample size, in which the sampling process is clearly presented. The potential to inferences is clearly consistent and the findings can be relevant in the perspective of national public health. On the other hand, my concern and main criticism is the absence of originality in the objectives proposed by the authors. There are many studies dealing with obesity prevalence around world and based in this background, the current form of the manuscript brings almost nothing of new. The current manuscript is not attractive. My suggestion to the authors is focus their attention again in the dataset is identify more attractive and original objectives. For example, what is the impact of TV viewing on the prevalence of overweight/obesity among those adults? I mean, how TV viewing affects this increase trend in the occurrence of overweight/obesity? This new approach will require a complete reformulation of the main sections (Introduction, Results and Discussion), as well as, it will require a statistical analysis more creative and elaborated. Sorry about the unfavorable feedback, but I believe that authors have a huge and well elaborated dataset with potential for publication of findings useful to health professional and organizations in Bangladesh.

VERSION 1 – AUTHOR RESPONSE

Reviewers' Comments to Author
Reviewer: 1
Reviewer Name: Stefania Triunfo

Institution and Country: UCSC, Rome, Italy
Competing Interests: None declared

TRENDS, PREVALENCE, AND RISK FACTORS IN OVERWEIGHT AND OBESITY AMONG WOMEN OF REPRODUCTIVE AGE IN BANGLADESH, 1999-2014

In their epidemiological study, the authors aimed to determine trends in prevalence and risk factors of overweight and obesity among Bangladeshi reproductive age women during a 15-years period. From nationally representative data from repeated cross-sectional Bangladesh Demographic and Health Survey in 1999, 2004, 2007, 2011, and 2014, they found:
1. Significant increase of prevalence of overweight and obesity among reproductive age women, irrespective to the type of the area (urban vs. rural).
2. Association between age, education, wealth index, watching TV, and contraceptive use, and overweight and obesity in both urban and rural areas.
So, they concluded suggesting the need to develop effective low cost strategies to mitigate the increasing burden of obesity.

Although there are some important limitations (i.e., missing data about food intake, physical activity, etc; secondary cross-sectional analysis), as recognized by the same authors in the discussion section, the study seems interesting and useful to direct appropriate lifestyle to selected age-classes and specific areas in developing countries, such as Bangladesh, in order to reduce both short- and long-term complications, associated to abnormal nutritional status in reproductive age. Additionally, it endorses the use of the ad hoc Asian-specific guidelines, able to improve the identification of changes in trends of prevalence of different BMI categories, in contrast to previous studies published in a similar setting.

However, there are some methodological aspects to clarify and some amends to do:

1. The choice of years of the survey (1999, 2004, 2007, 2011, 2014) is not clear: do the authors explain it, please?
Author's response: Thank you for your valuable feedback. The Bangladesh Demographic and Health Survey (BDHS) data sets were collected in a three-year interval through a collaborative effort of the National Institute of Population Research and Training (NIPORT), ICF International (USA), and Mitra and Associates under the authority of Ministry of Health and Family Welfare since 1993. We included all BDHS survey data from 1999 to 2014.

2. ABSTRACT (pag. 2, lines 22-24): There is confusion between measure and outcome: BMI is a measure and not primary outcome (=obesity, overweight…).

Author's response: We have updated the main outcome as overweight/ obesity. Please see page 2 of the revised manuscript.

3. INTRODUCTION: In order to update references in adverse pregnancy outcome in presence of obesity, overweight and underweight, you can consider also as updated summary the reviews by Triunfo S, J Endocrinol Invest. 2014-2015

Author's response: We have updated the reference as suggested.

4. METHODS (pag. 7, line 41): How do you define exactly the categories of wealth index? Please, to specify it.
Author's response: The wealth index is a measure of household's cumulative living status. The cumulative index was calculated by BDHS surveys using principal component analysis of household's

ownership of selected assets, such as televisions and bicycles; materials used for housing construction; and types of water access and sanitation facilities. We have used the five categorical variable of wealth index provided by the BDHS. Please see page 7-8 of the revised manuscript.

5. RESULTS (pag. 9, lines 17-19): Kernel density estimation as a non-parametric way to estimate the probability density function of a random variable (BMI, in this study, Fig. 1), should be informative taking into account the normality. The Fig. 1 should be included also the standard normal distribution in order to appreciate the BMI density. Please, to reconstruct it.

Author's response: We have updated the figure 1.

6. RESULTS (pag. 10, lines 3-6): there is a crossover exchange between values attributable to rural and urban areas (21.09% instead to 29.74%). Please, to amend it.

Author's response: We have edited and updated the percentages.

7. RESULTS (pag. 11, line 29): "…with higher educational level…" is not consistent with Tab. 2. Please, to adjust it.

Author's response: We have re-checked numbers. The risk is higher for urban women and we have reported accordingly.

8. Some parts of the paper are not easy to understand due to English style (i.e., pag. 3, lines 12-13; pag. 5, lines 16-19; pag. 6, lines 36-46; pag. 8, lines 8-13; pag. 13, lines 9-13). Please, to check it.

Author's response: We have revised the language of the entire manuscript to make it more understandable.
Reviewer: 2
Reviewer Name: Romulo Fernandes
Institution and Country: Sao Paulo State University - UNESP, Brazil
Competing Interests: None

In general, the manuscript has a large sample size, in which the sampling process is clearly presented. The potential to inferences is clearly consistent and the findings can be relevant in the perspective of national public health.

On the other hand, my concern and main criticism is the absence of originality in the objectives proposed by the authors. There are many studies dealing with obesity prevalence around world and based in this background, the current form of the manuscript brings almost nothing of new. The current manuscript is not attractive.

My suggestion to the authors is focus their attention again in the dataset is identify more attractive and original objectives. For example, what is the impact of TV viewing on the prevalence of overweight/obesity among those adults? I mean, how TV viewing affects this increase trend in the occurrence of overweight/obesity? This new approach will require a complete reformulation of the main sections (Introduction, Results and Discussion), as well as, it will require a statistical analysis more creative and elaborated.

Sorry about the unfavorable feedback, but I believe that authors have a huge and well elaborated dataset with potential for publication of findings useful to health professional and organizations in Bangladesh.

Author's response: We thank the reviewer for the thoughtful comments and suggestions. As the reviewers mentioned the manuscript has a large sample size, clear description the sampling design and most importantly, the findings have relevance to the perspective of national public health, which was the main motivation for this study. We agree with the reviewer that there are studies reporting obesity prevalence in many other settings and the study idea is not novel. However, we would like to mention that many of these studies are conducted in high-income countries and the socio-demographic characteristics of those settings is likely different from that of Bangladesh. Moreover, to our knowledge there is no previous study in Bangladesh estimated the prevalence of overweight and obesity using over fifteen years of national data. We believe that using national level data has important policy implications. Moreover, as the first reviewer mentioned use of Asian BMI standard would help to identify the changes in trends of prevalence of different BMI categories; the research will help to plan intervention programs for appropriate groups using the changed prevalence's.

Although Bangladesh has made substantial progress in reducing death from pregnancy-related complications in the last couple of decades, it remains very high. Because overweight and obesity is significantly associated with adverse maternal health and pregnancy outcomes and the fact that our results showed an increasing trend of obesity among reproductive age women, this analysis will help policy makers and health system administrators develop specific recommendations for Bangladesh.

We used TV watching as a proxy for sedentary time in the analysis. However, we do not have how many hours a respondent watched TV. Rather, we have categorical variables for TV watching (daily, at least once in a week and at least once in a month). We agree with the reviewer about the potential of other publications with the dataset and we hope to explore further for future work.

VERSION 2 – REVIEW

REVIEWER	Stefania Triunfo Catholic University in Rome, Italiy
REVIEW RETURNED	02-Mar-2018

GENERAL COMMENTS	In the revised version the manuscript appears better than the first version, therefore compatible with potential publication

REVIEWER	Romulo Fernandes Sao Paulo State University
REVIEW RETURNED	09-Mar-2018

GENERAL COMMENTS	Dear Authors, even you not agreeing with my comments, thank you to address them. My comments were made in order to make the manuscript more attractive and prone to be cited. The description of obesity prevalence and its correlates, even not published previously in this population, it seems too simple to be published in BMJ Open.

VERSION 2 – AUTHOR RESPONSE

Reviewer: 2

Reviewer Name: Romulo Fernandes

Institution and Country: Sao Paulo State University, Brazil

Competing Interests: None declared

Dear Authors,

even you not agreeing with my comments, thank you to address them.

My comments were made in order to make the manuscript more attractive and prone to be cited. The description of obesity prevalence and its correlates, even not published previously in this population, it seems too simple to be published in BMJ Open.

Authors Response:

Thank you for your time and reviewing the manuscript. Obesity in Bangladesh has not been studied extensively. A few studies that reported the cross-sectional prevalence of overweight and obesity were based on one year or a specific group and used WHO international cutoff. In our study, we use fifteen years of data on obesity and compared results in rural and urban areas using both cutoff values (international and Asian). We found a wide variation of obesity prevalence in rural areas and risk factors which is very crucial. Moreover, our study has a larger sample which is nationally representative and will help the policy makers and county health system to implement specific policies by age group, region, and place of residence. We also would like to mention that Bangladesh has made significant improvements in maternal and child health, however; the rate of pregnancy-related deaths is still high. Since overweight and obesity is significantly associated with adverse maternal health and pregnancy outcomes and the fact that our results showed an increasing trend of obesity among reproductive-age women, this research will attract policymakers and health system administrators in calling for new policies for Bangladesh. Therefore, we believe all these findings will make the research attractive and will be a call for new policies and foundation for new research.