Reviewer’s report

Title: The Social determinants of Health Facility Delivery Among Reproductive Aged Women in Ghana

Version: 0 Date: 28 Mar 2019

Reviewer: Firew Ayalew

Reviewer's report:

Abstract

Authors described that "In terms of parity, first time mothers were 58% (95% CI = 1.18-2.12) times more likely to deliver at health facility than those who had given birth three or more times before". What does it mean 58% times? Do you mean this 0.58 times? If yes, the statement should be changed into less likely since OR is less than 1 compared to the reference…… correct in all sections!

I suggest to add effect size of odds ratio within bracket ( Adjusted OR=xx; 95% CI=…) for all findings

Introduction

What do mean perceived need factors? Please explain more in this section/ in method section.

As authors indicated in method section, the Anderson theoretical model includes three types of factors: predisposing, enabling and need factors. Why do authors emphasized to examine the need factors? And why not they drop predisposing and enabling factors in the analysis. Give explanation in method section/introduction the reason for this.

Methods

The 2014 DHS included 9396 women of reproductive age. What was the response rate? Please add it.

For variable classification :

* "financial status (poor, middle, rich)"- how do you come up to classify financial status as "poor, middle, rich?" Do you use the wealth quintile/index classification? Please explain.
* Education (no education, primary, at least secondary) - explain level of primary education and secondary. Is primary education from grade 1-6/8? indicate grade classification? What about informal education?

Statistical analysis:

Selection of candidate variables for multivariable model, authors used p<0.2. Where did authors get this? Give reference. According to DAVID W. HOSMER; and STANLEY LEMESHOW book entitled as - Applied Logistic regression, 2000 second edition, suggested that "Any variable whose univariable test has a p-value < 0.25 is a candidate for the multivariable model along with all variables of known clinical importance, page 95". Please consider this!

Multivariate is different from Multivariable. Please use the word multivariable model in your paper. No need to mix both.

How did authors accounted for clustering effects in their model? Since DHS employed a nested cluster sampling design. Just for consideration, for cluster data, the recommended model is multilevel logistic/linear regression. Please explain your approaches to eliminate clustering effect or intra-cluster correlation coefficient (ICC) …..

I suggest to refer the recent American Statistical Association (ASA) paper for use of p-value. ASA recommended researches to use effect size, 95% confidence interval for statistical significant conclusion instead of p-value. ASA strongly advised not to relay on p-value for conclusion.

Results

Revise results based on the comments given in method section.

Better to report median of age instead of mean/average age. Mean is affected by extreme values/outliers.

Describe the sample distribution of respondents by their financial status; followed by description of % of respondents by delivery place.

No need interpretation/speculation in result section- as authors said "This study observed a general trend of health facility delivery decreasing with higher parity" -take out

Wrong to say ….89% times…. See my comments in abstract section. Either you to say 0.89 times or 89 times…. Or say …..89% higher in xx group compared to the reference…
For example, authors correctly described in one of their variables as "First-time mothers were 2.77 (95% CI = 2.19-3.50) times more likely to have health facility delivery than women who had given birth three or more times" do same for other variable description.

Correct your the manuscript accordingly!

Make consistent to report your findings across in the manuscript. Example, (OR =1.65, 95% CI=1.29-2.11), this is the best way to report in your paper. (effect size, with corresponding 95% CI).

Multivariable analysis result: It is better to describe your statistical analysis/modeling strategy in method section instead of result section. How do you control/manage confounding, interaction effect, multicollinearity, VIF, AIC,…all should be described articulately in method section. Not in result section.

Table 3: replace odds ratio with "unadjusted odds ratio" in the column

In Table 4: replace odds ratio with "adjusted odds ratio" in the column

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An article whose findings are important to those with closely related research interests

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