Reviewer’s report

Title: Prevalence and correlates of contraceptive use among female adolescents in Ghana

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Reviewer: Katherine Tumlinson

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Review of “Prevalence and correlates of contraceptive use among female adolescents in Ghana” by Samuel H Nyarko

This article presents the prevalence of contraceptive use among several sub-groups of adolescent women in Ghana, using representative data from the 2008 GDHS. Additionally, it identifies several variables that are significantly associated with current contraceptive use among adolescent women in Ghana. A quick review of PubMed confirms that this type of analysis – which focuses on adolescent contraceptive use in Ghana – has not been previously published and, as such, could make a contribution to the literature. However, there are several major concerns that the author must address prior to publication. First, the author must do a better job pulling together proper citations. Several statements currently lack citation and several others are incorrectly cited or cited with very out-of-date journal articles. Secondly, the type of regression analysis performed (bivariate versus multivariate) is not clear nor is it well justified and several variables (most notably wealth) are not well-defined for the reader. This is a really important concern and must be adequately addressed if the paper is to be worthy of publication. Additionally, the tables must be better presented (clearer/more descriptive titles and column headings) and I would like to see a graphic presentation of the method mix. Lastly, in the discussion and conclusion sections the author must be careful not to over-reach the data (bearing in mind the cross-sectional nature of the data), cite regional studies for comparison where relevant, and should describe more concrete programmatic and policy implications. All of these concerns are thoroughly described and enumerated below. I would encourage the author to take the time to carefully consider and meticulously address each of these concerns (perhaps in collaboration with more senior colleagues) and resubmit this manuscript.

Abstract

1. Lines 39-40: Please add a sentence or two with more concrete programmatic and policy implications/recommendations.

Introduction

1. Lines 52-53: Please provide a citation for this sentence.

2. Line 52: I believe “pregnancy prevention” is part of “fertility regulation” and therefore it may be redundant to refer to both. I recommend using one term or the other but not both.
3. Line 56: It’s not necessary to say both “more evident” and “particularly”. You could say “These constraints are particularly evident in SSA…” or “These constraints are more evident in SSA…”

4. Lines 54-56: What are the “constraints” that prevent us from meeting the sexual and reproductive health needs of adolescents? Please be specific.

5. Lines 56-57: What proportion of female adolescents in SSA has begun childbearing? You say it is the greatest (relative to the rest of the world?) but don’t state what it is. Additionally, you cite four articles to support this statement but they were all written 12-14 years ago. It is likely that the proportion of adolescents who has begun childbearing in SSA has changed in the last decade. Please provide current statistics and corresponding citations.

6. Lines 64-65: Please cite this sentence.

7. Lines 75-77: The use of the term “manifold” suggests there are numerous (more than 3) studies that support your statement that FP reduces maternal, child, and infant mortality. Furthermore, the article by Kathryn Kost is not relevant to your statement (it refers to negative birth outcomes in the US such as low birth weight, not infant mortality in SSA). Please remove the Kost citation and add other citations. Look for Lancet articles by John Cleland as one article you could cite here, but please include others as well.


9. Line 84: Please insert the words “sexually active” in front of “female adolescents” – this helps to distinguish your study from the previous similar study.

Methods

1. Line 102: State the size of the sample of women ages 15 to 19 (n=1037).

2. Lines 104-105: I’m confused by the coding of the outcome variable. You state that women using contraception were coded as ‘0’ and those not using were coded as ‘1’. Would it make more sense to code those NOT using any contraceptive method as ‘0’ and those who DO use as ‘1’? Actually, when I look at the results in Table 2, I’m certain you used the coding scheme I recommend, because it doesn’t make any sense that having higher education would make you more likely to NOT use any method of contraception. Therefore you don’t need to recode your outcome variable, you just need to correct the text on line 104 and 105.

3. Lines 105-109: Some of the variables need better explanation either in the methods section or in the body of Tables 1 and 2. For example, does “work” only refer to paid work? Which religious groups comprise “Other Christian”? How do you define “poor”, “average”, and “rich” – this is really important; did you combine certain wealth quintiles together? Be very explicit about this.

4. Discretionary Revision: Lines 112-115: I think you can just say “logistic
regression” rather than “binary logistic regression” as multinomial logistic regression is fairly uncommon and we know that your outcome is binary.

5. Lines 110-117: I’m concerned by your decision to use bivariate analysis to present your regression results. Please explain to your readers/audience why you decided to use bivariate rather than multivariate analysis. Please also explain why you are not concerned that your significant bivariate results could be potentially confounded by other variables. This is a major concern that must be addressed to the satisfaction of all reviewers and editors.

6. Please also explain how you came up with your list of select variables.

7. Discretionary Revision: Did you consider including variables that measure media exposure or discussion of family planning with a partner or friend?

8. Discretionary Revision: I think it would be very interesting to see if your results change when looking at just modern or just traditional use. Can you stratify by these two categories of method type?

Results

1. Please start by stating the overall contraceptive prevalence in the overall sample of 1037 women. By my calculation, it is approximately 18 percent but this needs to be stated. Please also break down the overall contraceptive prevalence by modern and traditional methods. Ideally, I would like to see a pie graph that presents the method mix for all currently available methods so that I can consider what percent of participants are using long acting or permanent methods, etc.

2. Presentation of Table 1: There are several things to address here. First, you need to change the title of your table to be more descriptive. If I were to stumble upon your table outside of the context of this paper, I need to be able to interpret it perfectly. Currently this is not possible. I would suggest something like this for the title of the Table: “Prevalence of contraceptive use among a sample of 1,037 women in Ghana ages 15 to 19, by select characteristics. 2008.” Secondly, you don’t need to list the Frequency column. We can easily determine the frequency if we know the percent and the total sample size. Also, frequency is not really interesting compared with percent. Next, change “percent” to “percent distribution” so that the reader understands this is the percent of participants in each of these category. Last, change “proportion” to “percent currently using contraception”. I would also change “Variables” to “Characteristic”. Spell out GDHS.

3. Discretionary Revision: Line 169: Remove the word “binary”.

4. Lines 169-171: In the methods section you state that you are using bivariate analysis but in the first paragraph of the regression results you state that “all the selected independent variables were included in the model.” This is really confusing. Please clarify the following:

a. When you stated this, do you mean that all the selected variables were entered into the same model? If this is the case, then you used multivariate (not bivariate) analysis because you have multiple independent variables in the same model. If this is the case, you need to state clearly throughout the paper that you are using multivariate analysis and at the bottom of Table 2 you should list the
covariates included in the model.

b. Or do you mean that all the independent variables were entered into separate bivariate models (in which case you have many models, each with only two variables)?

c. Either way – whether you used bivariate or multivariate analysis – the type of analysis you used needs to be stated very clearly so that the readers/audience have a very clear understanding of what you have done to arrive at your results. You also need to justify your decision if you used bivariate analysis and discuss the limitations of this type of data analysis in the discussion section.

d. Also, if you used multivariate analysis but removed those variables that were not significantly associated with your outcome from your one model, I'm not confident this is a correct model-building approach. Please justify this approach.

5. Overall: Let’s talk about the presentation of odds ratios. There is a common misinterpretation when dealing with ratio measures of effect. In the following two examples, the wording does not mean the same thing.

a. The 5-year risk of ovarian cancer among women who have ever used oral contraceptives is 1.65 times the 5-year risk of ovarian cancer among women who have never used oral contraceptives.

b. The 5-year risk of ovarian cancer among women who have ever used oral contraceptives is 1.65 times higher than the 5-year risk of ovarian cancer among women who have never used oral contraceptives.

c. The reason these two statements do not mean the same thing is because the use of the words “times higher than” implies that the RR=2.65.

d. Therefore, in lines 177 through 186, you need to change your language. Here is an example: “In effect, the odds of contraceptive use among females ages 18 to 19 were 3.49 times the odds of contraceptive use among women ages 15 to 17 years of age.”

6. Table 2 title, please consider something like this: “Table 2: Correlation between select characteristics and current contraceptive use among a sample of 1,037 women ages 15 to 19 years in Ghana. 2008.”

Discussion

1. Overall – please be careful when using cross-sectional data not to over-reach the meaning of your results. You are only able to demonstrate a correlation or association, not causality. Therefore you have to think about the direction of possible cause and effect since temporality cannot be established.

2. Lines 192-198: The fact that women 18-19 are so much more likely to use FP compared to women 15-17 could be due to the fact that they are more likely to be married, working, and have obtained more education than is possible at the earlier ages. It could also be the case that they have greater need because they could be more likely to be sexually active. Have you excluded women who are not sexually active and, if not, you need to justify this decision early in the article.

3. Lines 208-216: There must be other studies that demonstrate the correlation between work status and contraceptive use other than the one Bangladesh study
(Khan). It would be a good idea to try to find additional studies from SSA to cite in addition to Khan.

4. Lines 217-223: This could be a case of reverse causality. It could be that women who use contraception (particularly those who use traditional methods) have a greater likelihood of knowing their ovulation cycle rather than the other way around.

5. Line 224: Insert the word “association” after “significant”.

6. Lines 224-234: This could also be a case of reverse causality. Those women who are using or want to use FP are more likely to have visited a health facility compared with women who are not using a method.

Conclusion

1. Line 253: You would want to target those ages “17 and below” not “15 and below”.

2. Please say more about how programs and policies can target these groups – i.e. how can they be reached? You need to have more concrete recommendations.

3. I’m not convinced that increasing the number of female adolescents visiting a health facility will increase contraceptive prevalence. If they are not interested in using FP and/or if they are not sexually active, the visit is not relevant to them and will not lead to more FP use.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Needs some language corrections before being published

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests