Author’s response to reviews

Title: Trends in repeated pregnancy among adolescents in the Philippines from 1993 to 2013

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Author’s response to reviews:

(WE ALSO ATTACHED IN THIS SUBMISSION A COPY OF OUR RESPONSES IN MS WORD FORMAT)

Response to Reviewer Comments Letter

Re: Manuscript REPH-D-17-00287: “Have repeat pregnancy really decreased in the last 20 years? A study of trends amongst adolescents in the Philippines from 1993 to 2013”

Thank you for considering our article for resubmission. We have revised sections of our manuscript based on the comments and suggestions of the reviewers. The changes made, together with our responses, are clearly outlined in the following format.

A. Comment

B. Authors’ Response

C. Page/s and line number/s where changes can be found

D. Actual modified texts

We are confident that all the concerns of the reviewers have been addressed in our revised manuscript. Please do not hesitate to give us further feedback or request additional revisions.

Looking forward to your soonest response.
RESPONSE TO REVIEWER COMMENTS

REVIEWER#1

Title

Reviewer 1, Point 1
A. This seems too long. A short and concise title could be appropriate. In addition, the indication of 'last 20 years' and '1993-2013' could imply tautology.

B. We shortened the title based on the suggestions above.

C. Page 1

D. “Trends in repeated pregnancy among adolescents in the Philippines from 1993 to 2013”

Plain English Summary

Reviewer 1, Points 2 and 3
A. P4, Line 2-3, Adolescents seems to have been substituted with teenager.

There seems to be a misconception of the idea of adolescent pregnancy and teenage pregnancy or repeated pregnancy. While there have not been a consensus on age definition of adolescent, most
adolescent have reached puberty whereas a teenager may not have necessarily attained that level. Therefore, the author should have treated/defined the two concepts distinctively instead of using the two concepts as meaning the same thing.

B. We replaced “teenage” with “adolescent” to avoid confusion.

C. Page 2, Par. 3; Page 3, Par. 1; Page 4, Par. 1 and 2; Page 5, Par. 1 and 2; Page 6, Par. 1; Page 7, Par. 1, 3; Page 12, Par. 1 and 2; Page 14, Par. 1; Page 15, Par. 1;

D. “From a baseline prevalence of 20.39% in 1993, the prevalence of RP among adolescents had only reduced to 18.06% by 2013.”

“Despite high and stable levels of adolescent fertility in the Philippines, no specific research has been conducted to specifically measure the trend and magnitude of repeated teenage adolescent pregnancy, which is defined as an adolescent who has had at least two pregnancies. Repeated pregnancy, therefore needs to be investigated as it reflects not only the reproductive health of adolescent mothers but also disparities in service delivery of health, education and welfare support to adolescents after their first pregnancy.”

“The adolescent pregnancy epidemic in the…

Repeated adolescent pregnancy, which is defined as a subsequent pregnancy among adolescents aged 10–19 years is known to affect around 18% of adolescent mothers in the USA, Europe, and Australia. Despite the evident chance of repeated adolescent pregnancy especially within two years postpartum…”

“…It relates to low educational attainment, limited employment opportunities and poverty among adolescent mothers. It has been shown that repeated adolescent pregnancy leads to an increase in national health and welfare expenditure as a consequence of the long-term dependency of adolescents and their families on government assistance.

An increasing trend of adolescent sexual activity ongoing poor compliance with modern contraceptives and inadequate use of family planning services all suggest that repeated adolescent pregnancy is highly prevalent in the Philippines. Analysis of existing nationally representative data can be helpful in evaluating the extent of this public health problem. In this study, we aim to determine the prevalence of repeated pregnancies and births among adolescents and young adults from a series of national surveys conducted between 1993 and 2013…”
Reviewer 1, Point 4
A. P5, line 34: the line may be written as: …………discussed the relationship between age and parity among Filipino adolescents,
B. We revised this sentence based on the suggestion above.
C. Page 4, Par. 2
D. “…the relationship between age and parity among Filipino adolescents…”

Reviewer 1, Point 5
A. P5, line 39-49: Author may need to re-check these line and present them in short concise 2or 3 sentences.
B. We revised this sentence based on the suggestion above.
C. Page 4, Par. 3
D. “As a marker for adolescent reproductive health, repeated pregnancy reflects health disparities, particularly among the disadvantaged adolescent population. Repeated pregnancy also indicates poor distribution and unequal access to reproductive health services and inadequate service capacity of individual localities.”

Reviewer 1, Point 6
A. The plain summary should provide more information than what the author presented.
B. We have provided more information about the methods and clarifying our study objectives.
C. Page 3
D. “Despite high and stable levels of adolescent fertility in the Philippines, no specific research has been conducted to specifically measure the trend and magnitude of repeated teenage adolescent pregnancy, which is defined as an adolescent who has had at least two pregnancies. Repeated pregnancy, therefore needs to be investigated as it reflects not only the reproductive health of adolescent mothers but also disparities in service delivery of health, education and welfare support to adolescents after their first pregnancy.”
We used the Philippine Demographic and Health Surveys to sample 7,091 women aged 15–24 who experienced at least one pregnancy. Annual RP and RB prevalence per age group in three and five categories were calculated and stratified by region, type of residence and wealth quintile. Trends were statistically analysed using Cochran–Armitage tests and multivariate logistic regression.

While a decline was observed in 19–21 and 22–24 year olds, we found a constant prevalence of one in every five in 15–18 years old from 1993–2013. This trend was evident across all regions, types of residence and socio-economic status. Our analysis also found that those from the poorest wealth quintile demonstrated a heightened risk of repeated pregnancy compared to other quintiles. The non-decreasing prevalence trend of repeated pregnancy among adolescents indicated the need for secondary prevention programs particularly for the poorest households. Epidemiological investigations are also necessary to explore the causes and impact of repeated pregnancy on maternal, child and neonatal health, not only in the Philippines, but also among other low- and middle-income countries.

Introduction

Reviewer 1, Points 7 and 8

A. The statistics on the prevalence/magnitude of adolescent pregnancy in Philippine is obscured.

P4, Line 5-6: The claim that Philippine is the only country with unchanging teenage pregnancy rate in the past two decades supposed to be substantiated with facts. Author should feed the readers on the proportions across few past years.

B. We clarified our introduction by supporting our topic sentences with statistics. This hopefully provides sufficient evidence to support our claims.

C. Page 4, Par. 1

D. “The adolescent pregnancy epidemic in the Philippines has been acknowledged as one of the worst in the Western Pacific Region 1 with a recent prevalence of 13.6% among 15–19 year olds. The Philippines is the only country in this region with no significant decline in adolescent fertility in the past decades 2 from 56 per 1,000 in 1973 to 57 per 1,000 in 2013 2,3. In order to address this entrenched public health issue, preventive policies and programs have been implemented 4,5, and epidemiological studies have been developed to provide evidence of the current sexual health and behaviour of Filipino adolescents 6. However, these measures have put little emphasis on the more serious problem of repeated adolescent pregnancies.”
Reviewer 1, Point 9

A. P4, Line 27-32: Author may refrain from claiming that no formal investigation has been conducted to assess the magnitude of repeated pregnancy in developing countries.

B. We actually published a meta-analysis and found inadequate information about the magnitude of repeated pregnancy in other developing countries such as the Philippines. This finding was supported by a WHO report about teenage pregnancies in low- and middle-income countries. We rephrased this statement to avoid further confusion about this issue.

C. Page 4, Par. 2

D. “…Despite the evident chance of repeated adolescent pregnancy especially within two years postpartum 10, current research is unable to clearly establish its magnitude in developing countries such as the Philippines, nor how the trends have changed across time. Although a World Health Organization (WHO) multi-country report 11 discussed the relationship between age and parity among Filipino adolescents, this study did not assess the prevalence of multi-parity as its primary measure.”

Reviewer 1, Point 10

A. The following (and many more) could help to beef-up the statistics required in the introduction:

* The Philippine DHS of 2013 indicated certain rates

* The Philippine Statistics Authority also has some claims on this phenomenon.


B. We have included reference to these reports. We have also used the DHS and data from the Philippine Statistics Authority in the first paragraph of our introduction and other references pertaining to existing policies and other issues related to teenage pregnancy (e.g. nutrition).

C. Page 4, Par. 1; Page 4, Par. 2

D. “The adolescent pregnancy epidemic in the Philippines has been acknowledged as one of the worst in the Western Pacific Region 1 with a recent prevalence of 13.6% among 15–19 year olds. The Philippines is the only country in this region with no significant decline in adolescent fertility in the past decades 2 from 56 per 1,000 in 1973 to 57 per 1,000 in 2013 2,3.”

“…Despite the evident chance of repeated adolescent pregnancy especially within two years postpartum 10, current research is unable to clearly establish its magnitude in developing countries such as the Philippines, nor how the trends have changed across time 11-13…”

“An increasing trend of adolescent sexual activity 3 ongoing poor compliance with modern contraceptives 2,15 and inadequate use of family planning services all suggest that repeated adolescent pregnancy is highly prevalent in the Philippines…

Methods

Reviewer 1, Points 11 and 12

A. Why did author used the Philippine Demographic and Health Survey (DHS) of 1993, 1998, 2003, 2008 and 2013?

Are data available for other years? What informed the choice of these dataset? Author may also need to indicate that DHS for the country is quinquennium (i.e. conducted every five years).

B. The DHS contains information that allowed us to rigorously model our trends by adjusting relevant covariates using individual-level data. Moreover, DHS is a national representative survey and can demonstrate an externally valid estimate. We have explained this further in our Methods section and supplementary Table 1.

C. Page 6, Par. 1

D. “This study used the Philippine Demographic and Health Survey (DHS) from 1993, 1998, 2003, 2008, and 2013 which are cross-sectional surveys conducted every five years. This nationally representative survey involved a multi-stage sampling design up to the household
level with enumeration areas distributed by region and type of residence using the most recent national census as its sampling frame.”

Reviewer 1, Point 13

A. The author needs to be cleared about the definition of the subject matter. The reasons for combining or interchangeably using adolescent, teenagers and young adult must be made known to readers. Besides, the definition of teenagers as (15-19) is misleading. What happen to age 10-14 since the author refers to only adolescents in the body of the work?

B. The DHS only collected information among women of reproductive age which is from 15-45. This excludes young adolescents aged 10-14 years. We have clarified this in our Methods section.

C. Page 6, Par. 1

D. “All women in the selected households which includes adolescents aged 15–19 years and young adults aged 20–24 years were interviewed using the Individual Woman’s Questionnaire. This survey therefore excludes adolescents aged below 15 years. As shown in Appendix A, the majority of the survey sample belonged to these age brackets which we will refer to as adolescents for the succeeding parts of this paper.”

Reviewer 1, Point 14

A. Page 7, Line 32-29: definition of adolescent by age could be necessary here.

B. We stated the age inclusion in this sentence.

C. Page 6, Par. 2

D. “Repeated adolescent pregnancy/birth. An adolescent aged 15–19 years was considered as having experienced repeated pregnancy (RP) if she had experienced at least two pregnancies…”

Reviewer 1, Point 15

A. The age distribution seems not to follow any known demographic patterns (such as 10-14, 15-19, 20-24). The idea behind using 15-18, and ‘19-21’ ‘22-24’ seems not common.
Specifically, of what relevant is the distribution as these: 15-16, 17-18, 19-20, 21-22, and 23-24. These age groups can be re-grouped into 15-19, 20-24, etc (if the author desires) rather than plethora classifications. Are there specific distinctions between adolescent in age 15-16 and 17-18 or 21-22 and 23-24. Author may need to justify scientifically these age classifications or perhaps cite other studies that have used such classifications.

B. We opted to use this classification to consider the legal age in the Philippines which is 18 years old. This is relevant since adolescents aged 18 years and below are not legally allowed to access contraception in the Philippines without parental or guardian’s consent. Moreover, this also avoids diluted teenage prevalence since 19 year old adolescents are overrepresented in these surveys. We have further clarified this in our methods section and quoted other studies that used this classification.

C. Page 6, Par 4- Page 7, Par 1

D. “Respondents were categorized by age into three and five groups. The three age groups include “15–18” which considers the legal age of consent (18) in the Philippines, “19–21” as the transition period, and “22–24” as young adults 16.”

Reviewer 1, Point 16

A. “richest”, “richer”, “middle”, “poorer”, and “poorest” class.”

Reviewer 1, Point 17

A. Again, the reason(s) for the purposive selection of the three main island groups (Luzon, Visayas and Mindanao) is/are not known.

Author should know that generally, every action in scientific research must be justified/proven. This must be step-by-step and logically indicated at least for the purpose of 'reliability and 'replicability'.

B. We provided justification for this purposive selection.

C. Page 7, Par. 2

D. “…Region pertains to the three main island groups which are Luzon, Visayas, and Mindanao. We disaggregated and compared all estimates by region since each island group has unique geographical and cultural characteristics…”
Reviewer 1, Point 18

A. Again, the author failed to explain how the variables used for each of these techniques were measured. What computations were done to make the Dependent variable (for example) satisfied the condition for Cochran-Armitage tests, Multivariate logistic regression and even the Chi-Square. These are what readers or other researchers would want to know or learn.

B. We have provided further justification for our analytical approach.

C. Page 7, Par 4 - Page 8, Par 1

D. “We used the ptrendi package in Stata13 to perform Cochran–Armitage tests to determine the prevalence trend per age group using the chi-square statistic and meeting the assumptions of an additive model. It is a modified Pearson’s chi-square test which assesses the association between binary (i.e. RP and RB) and ordinal (i.e. year and age) categories. Multivariate logistic regression analysis with interaction effects for age (i.e. age groups using both three and five categories) and year was conducted while using repeated pregnancy and birth as binary outcome variables (i.e. yes or no). We measured the trend between two consecutive survey years to identify which periods had significant changes in prevalence…”

Results

Reviewer 1, Point 19

A. How many stages of analysis were conducted before the author would be reporting the results of the Preliminary Analysis (P10, Line 15).

B. We have clarified this in our manuscript.

C. Page 9, Par. 2

D. “Cochran–Armitage tests showed an overall decrease in the trend of RP (Chi2=127.60; p<0.001) across twenty years among the 15–24 years old from a weighted RP prevalence (WtPrevRP) of 58.12% in 1993 to 40.58% in 2013. There was also a general RB (Chi2=100.90; p<0.001) reduction from weighted RB prevalence (WtPrevRB) of 51.25% to 35.66%...”
Reviewer 1, Point 20

A. Author should try to avoid overlapping P10, Line 5 (age 22-24) and Line 17-22 (age 15-24)

B. We have revised these sentences in our manuscript.

C. Page 9, Par 1-2

D. “Among women aged 15–24 years the adolescents with at least one pregnancy (n=7,091), a large proportion (53.3%) were found among the 22-24 year olds…

Cochran–Armitage tests showed an overall decrease in the trend of RP (Chi2=127.60; p<0.001) across twenty years among the 15–24 years old from a weighted RP prevalence (WtPrevRP) of 58.12% in 1993 to 40.58% in 2013. There was also a general RB (Chi2=100.90; p<0.001) reduction from weighted RB prevalence (WtPrevRB) of 51.25% to 35.66%...”

Discussions

Reviewer 1, Point 21

A. This section may not require sub-headings. This type of dividing Discussion Section into segments can distorts the flow of communication. That may also accounts for the mix-up observed in the Strength and Limitation Sections.

* The authors may only single out the limitations while the strengths appear as part of the discussion. Normally, the strengths should be part of the contributions to knowledge.

B. We have removed the subheadings in our discussion section apart from the limitations and future research section.

C. Page 12–15

Reviewer 1, Point 22

A. Author claim that the work is the first to report the status of repeated pregnancy and birth in low- and middle-income countries (LMICs) in the Asia-pacific Region is to be economical with the truth. After all, the data used in this study were extracted from DHS. Also, the earlier comment in the Introduction may suffice. It could be as far as the author knows -"The more you search, the more you see".
B. We have rephrased this section to avoid further confusion.

C. Page 14, Par 1

D. “Our study uniquely explores the status of repeated pregnancy and birth in LMICs in the Asia-pacific Region. Most published reports on this topic are primarily from the USA, Europe, and Australia 29. Of the few reports identified from LMICs, many used birth order (i.e. 2nd order or higher) and a different denominator (i.e. total number of adolescents) in the computation of prevalence. Despite the availability of possible data sources among LMICs 30, few studies have attempted to look specifically at the distribution of adolescents and young adults with RP/RB. Most of the reports available may include vital statistics which is limited to those only with livebirths and does not necessarily account for previous unsuccessful pregnancies…”

Reviewer 1, Point 23

A. P15, Line 46, This prevents the risk of producing results effected …. should be replaced with affected,

B. We revised this accordingly.

C. Page 14, Par 4

D. “…results affected by the ecological fallacy, particularly in the analysis of year-age interaction…”

Reviewer 1, Point 24

A. The Author stated No Funding for the study but also acknowledged that the study was supported by the University of Queensland International Scholarship. Clarity may be required.

B. We revised this phrase accordingly. The University of Queensland International Scholarship is not a grant but a PhD scholarship which has provided me with a stipend and tuition fees as a UQ PhD scholar.

C. Page 18
D. “Competing Interests: The authors have no conflicts of interest to disclose. The authors have no financial relationships relevant to this article to disclose.

Funding: This study was supported by the University of Queensland International Scholarship.”

Reviewer #2

Reviewer 2, Point 1

A. In the Abstract, the comparison of trends among adolescents 15 - 18 is made against youth/older young people, 19-21 and 22-24. Which definition of 'adolescents' is being used? For the UN it's 10 - 19.

B. We considered the WHO definition to refer adolescents in this study. We regrouped our sample using these categories by considering the age of minority in the Philippines (i.e. 18 years old). To avoid this confusion, we replaced “adolescents” with “women”.

C. Page 2, Par 2

D. “A total of 7,091 women aged 15–24 who experienced at least one pregnancy were captured in the Philippine demographic health surveys from 1993–2013.”

Reviewer 2, Point 2

A. Is the result summarized accurately as 'no reduction' or 'negligible/minimal reduction' or (high), relatively stable/unchanged? Aim to keep consistent across the different parts of the article.

B. This pertained to negligible reduction. We revised this phrase accordingly.

C. Page 2, Par 3

D. “…showed negligible reduction over the 20 years…”
Reviewer 2, Point 3
A. Mathematically speaking the figures have slightly decreased against the 1993 baseline.

B. We recognised that there was a slight reduction using graphical inspection. We based our conclusions on our statistical model which showed null trend estimate and reduction.

C. Table 2

Reviewer 2, Point 4
A. Carefully note the use of the word 'adolescence' which is not equivalent with teenager, as noted in the Plain English Summary.

B. We considered the WHO definition to refer to adolescents in this study. We replaced “teenage” with “adolescent” to avoid confusion.

C. Page 3

D. “Despite high and stable levels of adolescent fertility in the Philippines, no specific research has been conducted to specifically measure the trend and magnitude of repeated teenage adolescent pregnancy, which is defined as an adolescent who has had at least two pregnancies. Repeated pregnancy, therefore needs to be investigated as it reflects not only the reproductive health of adolescent mothers but also disparities in service delivery of health, education and welfare support to adolescents after their first pregnancy.

We used the Philippine Demographic and Health Surveys to sample 7,091 women aged 15–24 who experienced at least one pregnancy. Annual RP and RB prevalence per age group in three and five categories were calculated and stratified by region, type of residence and wealth quintile. Trends were statistically analysed using Cochran–Armitage tests and multivariate logistic regression.

While a decline was observed in 19–21 and 22–24 year olds, we found a constant prevalence of one in every five in 15–18 years old from 1993–2013. This trend was evident across all regions, types of residence and socio-economic status. Our analysis also found that those from the poorest wealth quintile demonstrated a heightened risk of repeated pregnancy compared to other quintiles. The non-decreasing prevalence trend of repeated pregnancy among adolescents indicated the need for secondary prevention programs particularly for the poorest households. Epidemiological investigations are also necessary to explore the causes and impact of repeated pregnancy on maternal, child and neonatal health, not only in the Philippines, but also among other low- and middle-income countries.
Reviewer 2, Point 5

A. Introduction: a 'pregnancy epidemic' is quite a sensational opening statement that is not immediately contextualized with data. Perhaps a more nuanced statement?

B. We incorporated prevalence estimates based on recent reports to support this statement.

C. Page 4, Par. 1

D. “The adolescent pregnancy epidemic in the Philippines has been acknowledged as one of the worst in the Western Pacific Region 1 with a recent prevalence of 13.6% among 15–19 year olds. The Philippines is the only country in this region with no significant decline in adolescent fertility in the past decades 2 from 56 per 1,000 in 1973 to 57 per 1,000 in 2013 2,3…”