Author's response to reviews

Title: Sex education in Mumbai: exposure and opinions of adolescent students in Mumbai: A cross-sectional survey

Authors:

Tami Benzaken (TRB658@bham.ac.uk)
Ashutosh H Palep (ashpalep@gmail.com)
Paramjit S Gill (p.s.gill@bham.ac.uk)

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Author's response to reviews: see over
Dear Editor

We are grateful to the reviewers for the helpful comments and have addressed them as indicated below.

A. Reviewer 1

Major Compulsory Revisions:

Abstract
1. You state that you will ‘explore the potential impact of school based sex education..’ however, given the design of your study this was not possible nor discussed in the paper itself. I suggest that you remove mention of ‘potential impact’ of such education from the abstract as this is misleading.

Mention of ‘potential impact was removed from abstract’.

Background
2. Para 3, last sentence: You suggest that countries with a long-history of school-based sex education have low teenage birth rates and low rates of STIs among, however, you fail to acknowledge that there are likely to be other cultural, familial, societal and health service factors that influence the rates of pregnancy and STIs in those countries. You should discuss the possibility of other causes of the low rates or remove the sentence.

The following sentence was added to acknowledge the possibility of other factors ausing low rates of pregnancy and STIs: ‘However, it is important to acknowledge that other societal, familial, cultural and health service factors exist which may influence rates of teenage pregnancy and STIs in these countries’.

Methods
3. Para 1, sentence 2: You state that the state’s government refused to take part in the federal government initiative but did they offer an alternative? Or were there any other groups e.g. NGOs offering sex education to these students? Please provide more details.

Paragraph changed to state that it was a single government initiative- the Adolescence Education Programme specifically.

4. Para 1, sentence 3: More information needs to provided here on the selection of these 5 schools i.e. how representative were they of schools in the city? What is the total number of such schools in the city and how were these 5 selected? Also, it is essential that you should provide details of the grades that were involved in the survey and the age-ranges and sex-distributions within those grades.

Explanation of how the colleges were selected has been added to methods, paragraph 2. Additionally, the age and sex distributions of students within grades has been added to the results in table 1.

5. Para 3, sentence 2: This explanation of how classes were selected is unclear. How many classes of the relevant grades were in each school and how many were chosen to
participate? Any difference between the classes chosen and not chosen? e.g. were the classes streamed for academic ability, by sex etc.?

*A further explanation has been added to methods paragraph 4 detailing how classes were chosen (by subject studied- students were streamed to study an arts, science or commerce route- not by academic ability/sex) and how many classes participated in the study.*

6. Para 4, sentence 2: The basis of the sample size calculation is unclear. Please provide the proportion of students exposed to sex education that was used in the calculation. Was the plan to analyse for each sex separately and if so were you aiming for 400 students of each sex? In fact, the need for such a sample size calculation is unclear as you do not present 95% CI for the proportion of students exposed to school-based sex education and do not carry out any statistical comparisons e.g. between sexes for this outcome.

*A reference has been added explaining the sample size chosen. 400 students were needed in total (which has been clarified in the paper). Statistical comparisons have since been added following reviewers’ comments. As no data exists on the proportion of students exposed to sex education in this community the prevalence was assumed to be 50% which provides the greatest sample size that would be needed (see reference for further explanation).*

7. Para 4, sentence 4: You mention that you carried out logistic regression yet you do not provide sufficient details of the methods used to create your models e.g. was it forwards stepwise regression? What was the p-value that you used a cut-off when including/excluding variables from your model? In general, it is unclear to me why you wanted to look at factors associated with the students opinions on the importance of having sex education as part of the school curriculum. What is the public health importance of this? And if this was a key question (requiring such statistical analysis) then why was it not one of the aims of your study? (as described in the abstract) I suggest that you clarify the reasons for looking at this association and the statistical methods used or alternatively remove this analysis (and Table 2) from the paper.

*Taking your comment into consideration (and further comments from other reviewers) this analysis has been removed from the paper.*

8. Para 5, last sentence: Please explain why individual written informed consent was not obtained from the students and also state whether students were given the chance to ask questions following receipt of the ‘information statement’ (Methods, para 3).

*Consent was in the form of informed consent. By completing the questionnaire informed consent was assumed from students; this was in keeping with the Population Sciences and Humanities Internal Ethics Review Committee, University of Birmingham. The following sentence was added to the paragraph: ‘Students were given the opportunity to ask questions about the study’.*

Results
9. Para 1, sentence 1: Why so few males? (see my earlier suggestion to include age and sex distributions within the relevant grades in the schools)
Age and sex distributions within the relevant grades have been included now as table 1.

10. Para 1, sentence 2: Please state the % that returned a completed questionnaire.

This has been added. Results paragraph 1.

11. Para 3, sentence 1: Was there any information available from the students or their teachers/another source on the content of the sex education lessons that had taken place at the study schools?

No information was available from all students as to the content of sex education lessons. This has been discussed as part of the study’s limitations.

12. Para 4, last 2 sentences: See my earlier comments re the usefulness of this logistic regression analysis especially as almost 90% of the students thought that sex education was important.

13. Para 7, last sentence: Such statements where proportions are compared should be accompanied with some indication of whether this was a real difference between sexes, e.g. provide a p-value from a chi-squared analysis.

P-value added.

Conclusions

14. Para 2, sentence 2: Please provide some indication of whether the study in Dehli took place in the same time period and among a similar age/sex group of participants?

Comment added with regards to when the study took place (2007) and that participants were of a similar age.

15. Para 2, sentence 3: A major limitation of this study is the absence of detail on what sex education lessons the students received and so any comparison with the level of ‘sex education’ in other studies and/or the ‘expected/unexpected’ level of ‘sex education’ are futile. For example, the ‘sex education’ that the students are referring to could simply have been one lesson where the teachers told them not to have sex (i.e. not comprehensive sex education). If this were the case then it might not be unexpected that ~62% of students had received such a message.

Comment noted and this point has been added to the study’s limitations.

16. Para 3, last sentence: Please see my earlier comment re: this research question- if you are going to retain this analysis in the paper and suggest that further work be carried out on this question then you need to explain why is this important in terms of public health?

Analysis removed as has this point in keeping with your former suggestion.

17. Para 4: Please discuss the possibility of biased reporting given that the interviews took place in the school? i.e. Is it possible that students overemphasised the importance of knowledge obtained in school.
This has been discussed under limitations of the study, paragraph 1.

18. Para 6: Please discuss the possibility of social-desirability bias e.g. if the survey was led by a doctor then would students be more likely to say that they would like to obtain sex education from a doctor?

Issue of social desirability bias discussed under limitations, paragraph 1. Survey was not led by a doctor but by a medical student as part of their dissertation in a degree in International Health. The interviewer introduced herself as a university student studying international health, but not as a medical student.

19. Para 12, first sentence: Please provide more details of the ‘robust evidence which suggests that curriculum-based sex education programmes are beneficial in preventing HIV, STIs and early pregnancy in adolescents’. To my knowledge the only study (at least in SSA) that has shown this has been the Stepping Stones study in South Africa which found a decrease in HSV2 (not HIV). See the update to the Steady, Ready, Go review (http://www.evidence4action.org/images/stories/documents/srgreview.pdf) and associated article that is due to be published soon (Mavdezenge SN, Doyle AM, Ross DA. HIV prevention in young people in sub-Saharan Africa: A systematic review Adolescent Health In press.)

This statement is referenced and evidence to support it can be found in the reference provided: ‘Global perspectives on the sexual and reproductive health of adolescents: patterns, prevention, and potential’ - a series of articles on adolescent health from the Lancet.

General comments

20. A major limitation of this study is the lack of depth of information that was obtained e.g. on previous exposure to sex education and also on what kind of sex education programme students would like to happen in the future. A further limitation in terms of usefulness of the findings stems from the fact that even if students responded to questions such as ‘Do you feel you have good access to the advice you need?’ honestly, they may in fact not know what ‘good and complete advice’ consists of as they have never received it. These limitations, their implications for interpretation of the findings and the subsequent usefulness of the findings for public health should be thoroughly discussed in the paper. Further discussion of the potential policy implications of these findings should be provided as it is not clear that the findings from this study provide enough information to inform the design or implementation of sex education programmes in schools.

These points have been taken into consideration and have been discussed as part of limitations of the study.

• Minor Essential Revisions
The author can be trusted to make these. For example, missing labels on figures, the wrong use of a term, spelling mistakes.

Done

21. The first sentence of the abstract is currently a fragment and should be made into a proper sentence e.g. The aim of this study was to determine....
This has been amended: ‘The aim of this study was to determine students’ exposure to sex education and identify students’ perceptions of accessibility to sexual health advice and their preferences in implementing sex education.’

22. In the methods section of the abstract you should mention the age and sex of the students interviewed.

The sex and age of participants has been added to the methods section of the abstract.

23. The phrase ‘majority desire’ in the conclusions section of the abstract is unclear and you should edit e.g. the majority of those interviewed indicated their desire for....

These phrase has been changed and now reads: ‘The majority of those interviewed indicated a desire for more widespread implementation of school-based sex education, particularly amongst female respondents.’

Background

24. Para 1: Reference 3- I’m surprised that you quote HIV statistics from a 2007 online article. I suggest that you use (and reference) the data from the most recent UNAIDS HIV/AIDS epidemic update that is available online.

The reference used was from the World Health Organisation, rather than UNAIDS report, as UNAIDS most recent report was from 2006 and the WHO article from 2007. Regardless, both references indicate the exact same prevalence of HIV.

25. Para 1: Reference 4- Again I suggest that you update this incidence figure using recent UNAIDS data- it is unlikely that the HIV incidence in 1996 is relevant for a study carried out in 2010.

This reference quotes STIs other than HIV statistic and does not refer to HIV incidence. This was the most current figure available following a comprehensive literature review on the incidence of STIs. I have kept this reference as the UNAIDS statistics only refer to incidence for HIV.

26. Para 2, sentence 3: Please clarify if you are referring to ‘new’ (incident) or ‘existing’ (prevalent) HIV cases.

This has been clarified- cases are now described as ‘existing cases’.

27. Para 4, sentence 4: Please explain ‘co-curricular’.

Co-curricular has been defined as: ‘complementing but not part of the regular curriculum’.


Done.
29. Para 5, last sentence: I suggest that you replace ‘lacunae’ (a less commonly used word) with ‘gap’.

*The word ‘lacunae’ has been changed to ‘gap’.*

30. Para 6, first sentence: I suggest that you update references 3 and 4 (see my earlier comment)

*Please see response to comments 24 and 25 above.*

Methods

31. Para 3, 2nd last sentence: I suggest that you replace the word ‘ensure’ with ‘encourage’ as there is no way of ensuring honest responses.

*The word ‘ensure’ has been changed to ‘encourage’.*

32. Para 5, 2nd last sentence: Reference 20 does not seem appropriate for Indian policy on issues of informed consent- is there not a government document that states the rules re parental consent?

*A comprehensive search for a government document that states this was not found. This was stated in the paper by McManus et al published in the BMC Women’s Health 2008 without a reference.*

Results

33. Para 1, sentence 3: Was religion missing for the other 10 participants or did they state other religions?

*The religion of the other 10 participants has now been noted in paragraph 1 of the results.*

Conclusions

34. Para 5, last sentence: Please see my suggestion re a replacement/addition to reference 18.

*Reference changed- see point 28.*

35. Para 7, last sentence: Please check that this is the latest literature on the effectiveness of peer-educators. It might be worth referencing the Steady, Ready, Go! Review carried out by WHO and others which reviews studies in all developing countries: (http://www.who.int/child_adolescent_health/documents/trs_938/en/index.html and the recent update to this review covering studies in SSA only: http://www.evidence4action.org/images/stories/documents/srgreview.pdf)

*Reference 28 was more recent that above mentioned reviews, except the Steady, Ready Go! Review which does not specifically refer to peer-led interventions, but rather simply school based interventions.*

36. Para 9, sentence 2: Insert the word ‘reported’ in this sentence as behaviours were reported not observed and reported behaviour is prone to many potential biases.
The word ‘found’ was changed to ‘reported’.

37. Paragraph 13, second sentence: this should be reference 12 not 13 (I think)

Reference 13 changed to 12.

Tables
38. Table 2: If you are going to retain this table (see my earlier comments) then
(i) Please insert the number of students who were in each category (e.g. number who reported prior formal sex education), and within each group the number who thought that sex education was/ was not important. (ii) Please provide details of the model e.g. in a footnote describe what you adjusted for.
(iii) Minor suggestion: 2 decimal places is sufficient

Analysis removed.

Tables in general:
39. Why do you not present details of the answers to question B4?

Answers to question B4 are described in paragraph 3 of the results. It has not been presented in table form as it was a question of very few options (3) which can be adequately represented written long hand.

B. Reviewer 2
Discretionary Comments:
1. The title needs correction: Urban Mumbai is not India; hence Sex Education in India is misleading.

Done.

2. The discussion starts with the Phrase: “This is the first study in India which explores opinions and preferences’ – since the questionnaire uses ‘forced choices’ it is actually not a true exploration. Many of the references which the authors have quoted have looked at this issue – probably not as the main area of research or discussion.

This phrase has been changed to the following: ‘This study is one of the few…’

3. Though the authors have indicated low rate of refusal it must be remembered that the junior colleges students in India usually follow the instructions of the college authorities without much resistance.

Noted.

(Major) Mandatory Comments:
1. Article quotes the ban of sex education in schools in 2007 in a country where the prevalence of HIV is high. However it does not delve why the sex education was banned in 2007 in secondary schools – mainly following a Western model with little cultural sensitivity.

The ban was not on all sex education, but rather on one particular programme. This has consequently been amended in the paper to make clearer that the ban was on the
Adolescence Education Programme, and not on all sex education.

2. Authors have focussed only on Contraception and STIs (In fact this is indicated by a phrase in the questionnaire (STI – Infectious disease contracted by having sex). Sex Education is a much wider concept and should not be restricted only to the two issues mentioned above. Authors conclusion that the above two issues constitute knowledge is a reductionist view of sex education. Hence some of the conclusions are overarching.

*We appreciate this and have focused on these 2 aspects as they are important and focus for health promotion activities particularly in areas with high rates of HIV.*

3. The questionnaire used is very general - actually does not assess what adolescents understand by sex education and what sort of sex education they received in the school and what sort of sex education they prefer to be given.

*This has been noted. Please see comment A.20 above. This has now been expanded on in the study’s limitations.*

4. Scrutiny of the descriptives in Table 1 is very informative. First the students have multiple sources of information for STI and contraception. The authors have focussed on certain differences but not on others. For example they have focussed that female students (72.2%) got information from school in comparison to males (48.5%). There are other differences which have been ignored – many of the female students also indicated getting information from parents and other family members (50.5%) while only 18.1% of males got information from parents or other family members. They have not discussed the lack of differences in other source of information. Statistical Significance needs to be worked out before discussing such frequencies as there may no difference at all except in percentages. The focus on ‘information for females from school’ is probably to highlight how important it is to have formal sex education in schools. But that is a linear way of looking at one’s own data and not looking at the data in it totality.

*Further statistics, which had been previously ignored, are now discussed in the results section of the study. Moreover, the p-value (using chi-squared analysis) has been added when discussing differences between proportions.*

5. If authors continue to use the same tables, they need to discuss effective methods of imparting sex education in adolescents including schools in India. For example, parents need to be sensitized to discuss issues pertaining to sexual health especially with their adolescent girls (probably mothers) as 50% got information from family members.

*This has been discussed under discussion section, social norms, paragraph 3.*

6. Table 2 needs to be looked at again. There the gender mentioned is ‘male’. In the discussion it is ‘female’. However the authors themselves have said that the variance was only 9%.

*Please see comment A.16 above. This analysis has been removed.*

7. As mentioned earlier the preferences of the adolescents (from whom they would prefer the sex education information) need to be viewed with caution as there are ‘forced choices’.

This has been noted. Please see comment A.20 above. This has now been expanded on in the study’s limitations.

4. Scrutiny of the descriptives in Table 1 is very informative. First the students have multiple sources of information for STI and contraception. The authors have focussed on certain differences but not on others. For example they have focussed that female students (72.2%) got information from school in comparison to males (48.5%). There are other differences which have been ignored – many of the female students also indicated getting information from parents and other family members (50.5%) while only 18.1% of males got information from parents or other family members. They have not discussed the lack of differences in other source of information. Statistical Significance needs to be worked out before discussing such frequencies as there may no difference at all except in percentages. The focus on ‘information for females from school’ is probably to highlight how important it is to have formal sex education in schools. But that is a linear way of looking at one’s own data and not looking at the data in it totality.

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*This has been discussed under discussion section, social norms, paragraph 3.*

6. Table 2 needs to be looked at again. There the gender mentioned is ‘male’. In the discussion it is ‘female’. However the authors themselves have said that the variance was only 9%.

*Please see comment A.16 above. This analysis has been removed.*

7. As mentioned earlier the preferences of the adolescents (from whom they would prefer the sex education information) need to be viewed with caution as there are ‘forced choices’.
Noted. However, whilst the options were ‘forced choices’, a further option of other was provided in the questionnaire with space for free text so students had the opportunity to choose their own preference.

8. Authors also need to comment on the contradictions – most females get information on STI and contraception from family members / school (Mothers / teachers) many males got the information from friends. But they preferred ‘Doctors’ to provide information. Why – is it because

The choice of doctor as a method for implementing sex education has already been discussed in discussion section, implementing sex education, paragraph 1.

C. Reviewer 3
Major Compulsory revisions:
1. Methods: To be re-written to improve the quality of the article with following:
   a. Readers need to be explained how they have chosen the colleges. Is it randomly?

   This has been modified. See comment of reviewer A, comment 4.

   b. Further, I am little confused whether the study was done in school/s or colleges or both as the authors described in methods, in Page 4, Lines 23-24, the authors have described that ‘Classes of chosen subjects in each school was were selected based on convenience sampling for the participating school.’

   The study was carried out in junior colleges. All mention of schools in the paper have been changed to colleges.

   c. Readers need to be explained on the details of the sample size calculation of 400. Was any software used? Was prevalence of any disease or risk factor used on this issue?

   See comment for reviewer A comment 6 above.

   d. As per statements made in this article that, from 2007 in the state of Maharashtra the sex education was discontinued. So how the problem was solved and the authorities of colleges have permitted and co-operated in data collection has to be explained.

   Please see point B.1 above.

2. I am yet to find a section ‘Discussion’

The first section previously entitled conclusion has been changed to discussion.

Major essential revisions:
1. The manuscript needs corrections of grammatical mistakes and framing of sentences.

   Noted.

2. Introduction: It could have been better if the authors re-write the part with the incorporation of the following problems of sex education also.
   a. Unfortunately in the conventional literature, the concept of sex education has been unintentionally clubbed with STI and HIV/AIDS.
b. Along with the need of school based sex education programmes, the related problems of mass education regarding spreading concept family welfare prevention of adolescent marriage, adolescent pregnancy and nonexistence and/or reinforcements of sex education for adults in India.
c. On the top of everything, in a male dominated society the sex education has rarely been targeted towards adolescent males.

_These comments overlap with other reviewers comments and have been addressed._

3. ‘Results’ need to be trimmed with important positive and negative findings only.

_Noticed._

4. Table 1: Please mention that multiple responses were noted for single participant.

_This has been modified to mention that multiple responses were noted for single participants._

5. Why ‘Conclusions’ was done twice?

_This has been corrected and the first mention of conclusions has been changed to ‘Discussion’. _

6. Mentioning of the ‘Strength of the study’ and ‘Future directions of the study’ could improve the study

_Done_

Discretionary revisions;
1. Any form of feedback (even informal) from the participating students on this type of research would have been beneficial for future times.

_Noticed._

_Reviewer 4_

1. Minor Essential Revision

I just have a couple of minor revisions suggested:

a. In Ethical considerations: Last two words in the paragraph - ‘of’ is missing from the last two words (should be…. ‘or parts of it’ instead of ‘parts it’)

_The word ‘of’ has been added to this sentence._

b. Results: almost every one returned a completed or partially completed questionnaire. Can you write a sentence about how many gave in partially completed questionnaires and which questions did they not fill out? Many readers would find it interesting. I have had adolescents not answer certain questions because of their religious beliefs. Adding a sentence about what they did not answer or missed would be an interesting read/finding.

_This has been added in Results paragraph 1. The question most commonly unanswered has been discussed, but since a very small proportion had returned partially completed questionnaires, other questions that weren’t answered were not discussed as they were_
only unanswered by 1 or 2 participants.

c. Conclusions: The first sentences “this study is the first to explore………” ; This is not the first study so I would suggest adding ‘one of the few …’ or something similar like that. You can still distinguish it but it is not the first study to explore these issues.

This has been modified please see comment B.2 in reviewer’s discretionary comments above.

We hope this meets with your approval and look forward to seeing the paper in print.

Yours sincerely

Dr Paramjit S Gill on behalf of the authors