Author’s response to reviews

Title: Perceptions and intervention preferences of Moroccan adolescents, parents, and teachers regarding risks and protective factors for risky sexual behaviors leading to sexually transmitted infections in adolescents: Qualitative findings

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Version: 1 Date: 13 Jan 2019

Author’s response to reviews:

Dear Editor,

Thank you for your reply and comments.

Comments and responses:

Reviewer #1:

General comments:

Comment 1: The paper will benefit from editing from a technical editor with a focus on language corrections.

Response: the manuscript was edited by an expert in scientific editing.

Comment 2: the Results section describes the protective factors, risk factors and interventions but largely lacks substantiating these with evidence/quotes. There are a few quotes included in the results text though these are few and far between. The authors instead have included quotes
in a table format (Table 2) that reflect the themes across each of the FGD groups; disaggregated by the respondent gender. While this is a commendable approach, the reader is left to go back and forth from the text describing the theme to Table 2 and its content. Suggest either including additional quotes in the results text, or alternatively in tabular format under each thematic area presented in the results section.

Response: this comment was very useful to better present our data, thus, quotes were included in the text for each theme as requested. Quotes related to intervention preference were presented in Table 3.

Comment 3: the discussion section text is a bit confusing - it is unclear the alignment of the evidence from the study to the literature cited. There are many examples dispersed throughout the discussion section. I have highlighted a couple below. It will be very helpful if a technical editor works with the authors to substantially revise this section.

Page 22, Lines 490-494: "For example, social media within ...... during adolescence [25,45-48]": are the authors elucidating their findings or others per the references 25, 45-48.

Page 23; Lines 511-514: "In addition, those who .... unhealthy sexual behaviors." It is unclear whether the authors are elucidating from their results or from cited references. If the latter, please include.

Response: the discussion section was edited according to your suggestions as fellow:

Page 22: “For example, several investigations showed that social media within smartphones and computers can provide access to a wide range of pornographic images and videos; these devices can also facilitate communication and sexting between boys and girls at an early age, which may cause early interest in sex and accelerate the normal rise in sensation seeking during adolescence [29, 53-56].”

Page 23: “Furthermore, those who practice religion tend to establish relationships with friends who are similar to themselves and less sexually permissive, as highlighted in this study (45).”

Comment 4: The Discussion Section: A major strength of the study is the FGD groups (students, parents and teachers); however text quite often does not differentiate between these three groups - indicating "participants" rather than elucidating which participant group. There are several instances dispersed throughout the discussion section where it will be very helpful and will strengthen the discussion section if the participants category is also included. A couple of examples include:
Page 20; Lines 438-440: "Many participants viewed ..... with their mothers". Which category were these "many participants from; were they only students or included others i.e teachers and/or parents.

Page 20; Lines 443-444: "Several participants .... among adolescents". Which category were these "several participants"; were they only students or included others i.e teachers and/or parents.

Response: categories of participants were mentioned according to each case and the modifications are colored in red as fellow:

Page 20; Lines 438-440: “In contrast, many adolescents viewed family as a protection system, especially for adolescents who received good counseling within the family and communicated well, especially with their mothers.”

Page 20; Lines 443-444: “Many adolescents and teachers pointed out that peer influences can also increase or decrease risky sexual behavior among adolescents.”

Comment 5: I was expecting to review the quantitative data to substantiate the qualitative findings. However, this paper did not report quantitative findings that was a component of this mixed methods study. Are the authors contemplating a second paper restricted to the quantitative findings? It will be helpful if the authors include appropriate text referencing the quantitative findings - specifically as the authors mention that this is a mixed method study.

Response: quantitative findings still under analysis.

Specific Comments:

Comment 1:

Introduction: it will be helpful if the authors mention the age groups cited on Page 5 and attempt to focus the literature review on the 14 - 16-year olds - the study group to provide a strong justification for conducting the study on the 14-16 year olds propensity for risky sexual behavior and its negative consequences in the context of STIs and HIV.

Response: in the literature review (introduction section) we focused on the age category “14-16 years” and specified the age of participants as requested. As mentioned in the methodology section this age category was chosen because their school curriculum includes all items related to health risk behaviors.
Comment 2:

Methods: while the details of the study protocol is elaborated in BMC:Public Health, 2016; it is recommended that the methods section includes a more elaborate description of the methods with "details presented elsewhere" with reference [BMC:Public Health, 2016] cited.

Response: the methods section was edited in order to includes a more elaborate description of the study methods.

Comment 3: Page 7, Line 137: Please elaborate what the authors meant by "sampling continued until data saturation was achieved". What was the criteria that the authors used to detect "data saturation" for sampling purposes?

Response: we meant by saturation point was achieved the moment during the analysis of the data where the same themes are recurring, and no new insights are given by additional sources of data. In addition, saturation point is associated with the size of project when there is enough data to ensure the research questions can be answered. As recommended by the recent guidelines for thematic analysis (Braun & Clarke, 2013, p. 50) categorize suggestions by the type of data collection and the size of project (‘small’, ‘medium’, or ‘large’). For small projects, 6–10 participants are recommended for interviews, 2–4 for focus groups, 10–50 for participant-generated text and 10–100 for secondary sources. The upper range for large projects is ‘400+’.

Comment 4: Page 8; Lines 149-154: It will be helpful if the authors elaborate the similarities and specifically the differences in the FGD guidelines/questions between the three groups as shown in Table 1. Were the FGDs conducted gender disaggregated i.e parents in mothers FGD and fathers FGD; students as male students and female students, teachers as male teachers and female teachers

Response: in the “Methods section” the similarities and specifically the differences in the FGD guidelines/questions between the three groups were elaborated as requested (Table 2).

FGDs were conducted into single-sex groups in line with the conservatives’ norms of Moroccan society, while the same questions were presented to both males.

Comment 5:

Results: It will be very helpful if the authors include a table describing the number of FGDs per category; including their ages. In addition, there are several instances where the authors have
mentioned "participants" without specifying which category of participants. It will be helpful if the authors include the category.

Response: such information was added in the “Method section” and in “Table 1”. Also, we identified the category of participants that support the idea in the results and the discussion.

Comment 6: Page 13, Lines 265-266: "Adolescents in peer groups .... a similar behavior": please include relevant quote/s to substantiate the text

Response: two relevant quotes were added in the text to substantiate peer influence as requested.

Comment 7: Page 13; Lines 277-281: "Most teachers and parents ..... to make health sexual decisions": what about students; were they asked this question; What question in Table 1 does this finding reflect?

Response: regarding parents, the question that reflect this finding was not a direct question but emerged from the questions related to barriers and facilitators of these behaviors at all socio-ecological levels, including the school. Regarding the teachers related question that refers to this finding, it was a direct question about the role of school and curriculum in raising awareness on this topic. In this study students did not mention the insufficiency of the school curriculum in sex education or its adequacy of their requirements, unlike the groups of parents and teachers who mentioned this idea.

Comment 8: Page 13; Lines 288 - 289: "Furthermore extracurricular ... from parent and teacher discussion": will be helpful if the authors will include relevant text including quotes to substantiate the protective nature of extracurricular activities such as school clubs. Were other extracurricular activities mentioned? Did students not mention extracurricular activities? If not, this is an important finding - suggest highlight in result/s and in discussion.

Response: relevant quote/s were added to the body of the article to substantiate the protective nature of extracurricular activities also we added other quotes mentioned other extracurricular such as sports clubs, theater and drawing. For student they did not mention extracurricular activities, we added highlight in the results and the discussion sections.

Comment 9. Page 15; Lines 324-329: It will be very helpful if the authors include relevant quotes to substantiate the text. Religiosity is a significant influencing factor especially in a conservative Islamic society such as Morocco.
Response: relevant quote/s were added to the text in the results section of the article to substantiate Religiosity as a significant influencing factor in Morocco.

Reviewer #2: Abstract

Comment 1: Background

The presentation under this is clear. However, there is no single study quoted or reference to inform the claims made on background. It would be useful to have looked at both drivers and barriers

Response: the background was edited basing in this comment.

Comment 2: Methods

The methodology well highlights the approach taken. The analysis is equally well presented even though it is not clear how the datasets were analyzed after categorization by thematic areas. While it could be recommended that FGDs would suffice for adolescents its not clear how the FGDs were administered to teachers

Response: the methods section was also edited basing in this comment.

Comment 3: Results

The results are well presented in the abstract.

Response: thank you for this comment.

Comment 4:

The title of the manuscript: the title is a bit confusing, it talks about risks and protective factors of Sexually Transmitted Diseases. There are no known protective factors of STIs and especially when in this case it refers to adolescents as the primary subject. Use ‘for’ instead of ‘of’

The authors names are well presented including their contact details
Response: the title was modified respecting this comment as follow: “Title: Perceptions and intervention preferences of Moroccan adolescents, parents, and teachers regarding risks and protective factors for risky sexual behaviors leading to sexually transmitted infections in adolescents: Qualitative findings”

Abstract - Main body

Comment 5:

Background: well-articulated. No previous study referenced to as part of the background

It would be more reasonable to use the word 'promote' as opposed to 'facilitate' unless there is explanation of key concepts

Response: the background was reworked and edited basing in this comment and others. And we changed the word “facilitate” by “promote”.

Comment 6:

Introduction: well presented with various studies that help build a case for the study in relation to facilitators and drivers. The ecological model applied needs to be adequately explained and justification for its application be highlighted.

Response: further description of the socio-ecological approach was added in the introduction section. We used this model to gain a deep understanding of the phenomena and exploring the complex interaction between multiple contextual factors that influence risky sexual behaviors in adolescents, which should be taken into account in approaches to promote healthy behaviors.

Comment 7: the justification in the knowledge gap is not well explained bearing into account that most of the previous studies quoted brought out the common aspects/universally known drivers for STIs.

Response: in this section we tried to refer to the particularities in the conservative and Arab social culture and not to the common aspects of drivers for STIs this paragraph was also reworked.
Methodology

Comment 8: the methodology on the use of FGDs is clear. However, the statement needs to begin explaining the method used and study design before talking about triangulation. As it is, the three categories of FGDs infer triangulation as opposed the specific methodology.

Response: the methods section was edited based on this comment in order to include a more elaborate description of the study methods.

Comment 9: It would have also been useful if there were Key Informant Interviews especially for the teachers as opposed to FGDs. Teachers are not homogenous group and in some instances the parents.

Response: we agree with you it would have been useful if there were Key informant interviews to gather information from individual experts, but such method requires careful selection of subjects to gather input from the most knowledgeable people, and requires meeting with many people in order to produce results that can be generalized, which is difficult in our context due to scarcity in associations and experts concerned by adolescent sexual health.

For parents of adolescents, the selection was based on convenience sampling according to their voluntary participation in the study. For Teachers, the selection based on their disciplines, from included school’s teachers of disciplines concerning health risk behaviors (i.e. Life and earth Science, familial instruction, Islamic education, Arabic language, physical education) were randomly invited to participate in the FGDs. The homogeneity was not our aim rather to collect different Point of views of different range of age among parents and teachers. In addition, we respected the conservatives’ norms in Morocco by conducting a single sex FGDs.

Study participants

Comment 10: It is not clear what informed settling on 14-16 years old? Adolescence begin from 10-19 years and to be precise, adolescents is 10-14 years and teens from 15-19 years while youth generally is 10-24 years.

Response: because of homogeneity, we select to work in secondary school, in addition we have selected the final years in the middle school “K9” because their school curriculum includes items related to health risk behaviors, which means that the age of adolescents will not exceed 16 years.
Comment 11: kindly elaborate on this Clarify what one means by advantaged and disadvantaged schools. Including socio-economic levels in view of the study.

Response: we defined advantaged and disadvantaged schools with reference to neighborhood socio-economic levels. As previously known (Kipping, R. R., et al, 2015), socio-economic levels of neighborhood have an impact on adolescents’ behaviors.

Comment 12: There is need to explain the characteristics that were considered among the parents and teachers to ensure homogeneity in the groups before conducting FGDs.

Response: such information was added in the method section. For parents of adolescents, the selection was based on convenience sampling according to their voluntary participation in the study. For Teachers, the selection based on their disciplines, from included schools, teachers of disciplines concerning health risk behaviors (i.e. Life and earth Science, familial instruction, Islamic education, Arabic language, physical education) were randomly invited to participate in the FGDs.

Comment 13: Issues of consent not mentioned- the participants needed to sign a consent besides being informed about the confidentiality of the data/process.

Response: we mentioned the issues of consent under the Ethics approval and consent to participate paragraph as shown here: “After an explanation of the study objectives, written informed consent was obtained from all participants before study enrollment. Regarding adolescents, written informed consent was obtained from their parents or their legal guardians and verbal consent from each adolescent”

Data collection instruments

Comment 14: It is clear on the administration of FGDs. However, the number of participants per FGD not mentioned. There is also a need to restate the number of FGDs conducted.

Response: the number of FGDs conducted, the number of participants per FGD, and their characteristics was added in the method section and in table 1.

Ethical consideration

Comment 15: This is clearly presented, however there is no copy of the ethical approval letter/certificate as part of the annex.
Response: the copy of the ethics approval letter will be sent to the reviewers.

Data Analysis

Comment 16: The data analysis process is clear and how this was done. It would be useful to highlight the six phases of analysis mentioned.

Response: six phases of thematic analysis recommended by Braun and Clark was highlighted in the data collection methods and I added here some explication about how the analysis was done:

We have analyzed our data set using the six phases of thematic analysis recommended by Braun and Clarke (2006):

Familiarization with data: was initiated during the data collection phase in particular with the transcription procedure of audio tapes interviews, as we conduct the transcription of the discussion groups personally. In addition, researchers immersed themselves in the data by listening to audio recordings and reading transcripts several times.

Generation of initial codes: after familiarization with the data, common ideas were identified and interesting patterns were noted. This phase involves identifying codes from the data, the coding process is part of the analysis because the researcher begins to organize the data into meaningful groups. In accordance with the objectives of our study, we decided on a data-driven approach for coding process.

To ensure transparency and reliability, all transcripts was coded thoroughly by two researchers independently. The analysis team discussed their coding and interpretation of the transcripts in detail and any coding differences were discussed and resolved in order to refine codes and identify key themes emerging from the data.

Searching for themes: this phase consists of managing and sorting various codes into potential themes. Once the initial codes were generated, we looked for themes by categorizing the codes into meaningful groups. During this process, the codes were grouped and combined to generate themes, which takes something important about the data in relation to the research question.

Reviewing themes: after developing the initial themes, they need to be refined. Reviewing and refining themes is an iterative process. we constantly moved back and forth between the selected extracts from the data and the entire dataset to check if the themes make sense and account for all the coded extracts and the entire data set in order to assess the applicability of themes.

Defining and naming themes: generating definitions and clear names for each theme requires that the label or definition determines the aspect of the data that each theme captures as well as the themes in general. In addition, labels address aspects of data in relation to research questions. Once the themes have been established, they have been labeled in such a way that they are
conceptually distinguishable from each other to give the reader a sense of what each theme was about. In the end, we went back to the collected data extracts on each theme and we organized them meticulously into coherent and consistent narratives of the story that each theme tells.

Producing the report: After the final themes, have been discussed, we begin the process of writing the final report. While drafting the final report, we should decide on themes that make a significant contribution to answering research questions. The writing of the report should contain enough evidence of the themes in the data. In addition, the extracts of data must be sufficient to demonstrate the prevalence of the theme with vivid examples that reflect the essence of the theme. Eventually, we have incorporated excerpts into an analytic narrative that goes beyond the description of the data and makes an argument in relation to our research question.

Finally, major emerged themes were categorized according to the socio-ecological model, which allows us to explore the several contextual factors that influence adolescents’ attitudes, beliefs, and practices associated with adolescent risky sexual behaviors.

Comment 17: The linkage between ecological model and data collection and analysis is inadequate. How did you consider the various aspects of ecological model (individual, relational, community and societal) at the administration of FGDs and analysis thereof? At the same time ensure congruity between research methodology and research question or objectives? Were there any call-back/follow up to get more information on what was not clear or incomplete?

Response: focus groups guides were elaborated by the team members basing in the socio-ecological model and participants were asked about the risk and protective factors of risky sexual behaviors in Moroccan adolescents in the individual, relational, community and societal level.

For the analysis, we have analyzed our data set using the six phases of thematic analysis recommended by Braun and Clarke (2006) namely; familiarization with data, generation of initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report. To ensure transparency and reliability, all transcripts was coded thoroughly by two researchers independently. The analysis team discussed their coding and interpretation of the transcripts in detail and any coding differences were discussed and resolved in order to refine codes and identify key themes emerging from the data. Then the codes were grouped and combined to generate themes, which takes something important about the data in relation to the research question. After developing the initial themes, they need to be reviewed. Reviewing and refining themes was an iterative process as we constantly moved back and forth between the selected extracts from the data and the entire dataset to check if the themes make sense and account for all the coded extracts and the entire data set in order to assess the applicability of themes. Once the themes have been established, they have been labeled in such a way that they are conceptually distinguishable from each other to give the reader a sense of what each theme
was about. After that, we begin the process of writing the final report. While drafting the final report, we decide on themes that make a significant contribution to answering research questions.

Finally, the main themes that emerged were classified according to the socio-ecological model, which allows us to present an argument in relation to our research question and to explore the various contextual factors that influence adolescents’ attitudes, beliefs, and practices associated with adolescent risky sexual behaviors.

Results

Comment 18: The number of FGDs conducted and characteristics of the participants needed to come in the earlier paragraphs above. It is not clear why the parents and teachers of ages 30-60 were grouped together- these are not homogenous.

Response: the number of FGDs conducted, the number of participants per FGD, and their characteristics was added to the method section and in table 1. The parents and teachers of ages 30-60 were grouped together because we aimed to collect different Point of views of different range of age among parents and teachers.

Comment 19: The results are clearly highlighted especially on other routes such as use of needles, blood transfusion and drug injection; however, it is stated that campaigns on HIV transmission has been massive including transmission routes yet STIs seem to be a major challenge. Is HIV not an STI? And are other STIs not spread sexually as HIV?

Response: for this result, and through the discussion groups with the students, it was found that most of them speak only about AIDS as a sexually transmitted disease because most of them do not know other sexually transmitted diseases. This may be due to the fact that AIDS is more important for public health officials in terms of awareness and screening campaigns conducted than other sexually transmitted diseases. Despite these broad AIDS awareness campaigns, there is still a lack of awareness about transmission and protection of the disease among adolescents. This statement was rephrased in the results section.

Comment 20: Overall there is linkage between the ecological model and the study objectives.

While under risk factors there are voices highlighted verbatim, the same cannot be seen for protective factors. The participants and their voices need to be adequately represented in the study.

Response: we added participants voices highlighted verbatim to substantiate protective factors.
Discussion

Comment 21: Talk about the study without referring to you "our study" not necessary

While referring to other studies it is useful to give highlights especially on specific jurisdictions and what was found out in such studies. This will ensure seamless connection between the current study and the reference study.

Response: the discussion was edited based on your comments to give more interpretation and highlights especially on specific jurisdictions and what was found out in other studies. In addition, we changed "our study" by the “present study”.

Comment 22: The discussion is well presented

There is need to provide adequate interpretation of the results with less of reporting what has been captured in the results.

Response: further adequate interpretation of the results was added in the discussion section.

Comment 23: A lot of issues related to society such as religion are discussed under community unlike in the case of results where they were highlighted

Response: this comment its concerns the following paragraph “Other participants reported that Islamic education appears to play a protective role in the sexual health and behavior of adolescents. Indeed, strengthening religious beliefs and spiritual activities has resulted in adolescents making positive decisions regarding risky behaviors”.

I agree with you that religion is an issue related to society but here we discussed the protective role of Islamic education as a school subject in the middle school as highlighted by participants discussion.

Comment 24: The studies or references brought out in the discussion need to be highlighted in terms of what they talk about and whether the current study concur or contradicts such references.

Response: the discussion section was edited and enriched as recommended.
Comment 25: A lot of new viewpoints have come up which should be able to fill the knowledge gap identified in the introduction or background

Response: this comment is taken into account in the editing of discussion section and all modifications are colored in red.

Limitations

Comment 26. The limitations are well presented

Other glaring limitations would be on the choice of only one type of qualitative method- FGDs. The study would have been richer had it included KIIIs. The justification for limitation is equally clear. It is advisable that for each limitation the researcher should be able to explain how they were managed, or controls put in place

Response: the reason we used only FGDs in this study is that it is difficult to discuss easily with the participants in in-depth individual interviews about a taboo topic in our society such as sexuality, as most participants find themselves embarrassed to speak individually about this subject which makes their responses generally brief and vague. In contrast, focus group discussions encourage participants to easily discuss this sensitive subject with their peers, thereby enriching the discussion, sharing and generates new ideas, and promoting exploration of unknowns, especially as we respected the conservative norms of our society by conducting a single-sex focus groups.

The inclusion of Key informant interviews in this study would have been richer but such method requires careful selection of subjects to gather input from the most knowledgeable people and requires meeting with many people in order to produce results that can be generalized, which is difficult in our context due to scarce in associations and experts concerned by adolescent sexual health. This limitation was added to the limitation section.

Comment 27: Other groups such as religious leaders were not interviewed yet there were perceptions on the role of religion in shaping up adolescent behavior?

Response: I agree with you that religious leaders’ perceptions on the role of religion in shaping up adolescent behavior is important. But in our case, we had discussions with teachers of Islamic education as teachers and at the same time as specialists in the religion because their training allows it. In addition, some teachers of Islamic education even exercise religious orientation in the mosque and have responsibilities in the ministry of religious affairs. So, the perception of religious leaders is also considered.
Conclusions

Comment 28: The conclusions are too broad instead of being succinct and made along the study objectives. In this case the focus was on risk factors and the other on protective factors. The entire conclusion should be reworked along the two areas.

Response: the conclusion is reworked to be succinct and linked to the objectives of the study as follow: “conclusion: The influencing factors identified in this study belong to different ecological levels within an adolescent’s life. We observed that socio-cultural and personal barriers in Morocco led to a lack of knowledge, an increase of sensation-seeking behaviors, lack of parental communication about sexuality, and lack of sex education within the school in adolescents. In addition, due to globalization and access to technology and media, social norms have changed, leading to normalization of risky sexual behaviors. On the other hand, within individual influences, we found that awareness and fear of STIs, pregnancy, and shame can protect against risky sexual behaviors. Similarly, among social-environmental influences, maternal communication, prosocial peers, extracurricular activities, and religiosity were considered protective. Participants also suggested that interventions based on a multicomponent approach can be effective in delaying adolescent sexual activity and reducing STI acquisition.”

Comment 29: Most of the statements look like recommendations and these should be separate from the conclusion.

Response: we have also separated the statements that look like recommendation in separate section untitled recommendation.

Comment 30: In summary the conclusion should be drawn from research objectives which must also be linked to analysis and interpretation of the data.

Response: the conclusion is reworked following these comments.

Acknowledgement

Comment 31: There is no acknowledgement of parents as participants and neither teachers as participants

Response: we added the acknowledgement of parents and teachers as participants.