Author’s response to reviews

Title: Parents' and teachers' views on sexual health education and screening for sexually transmitted infections among in-school adolescent girls in Kenya: A qualitative study

Authors:

George Wanje (gwanje@uw.edu)
Linnet Masese (linnet@uw.edu)
Ethel Avuvika (eavuvika@yahoo.co.uk)
Anisa Baghazal (docbaghazal@gmail.com)
Grace Omoni (omonigrace@hotmail.com)
R. Scott McClelland (mcclell@uw.edu)

Version: 1 Date: 31 May 2017

Author’s response to reviews:

May 31st, 2017

Venkatraman Chandra-Mouli
Editor-In-Chief
Reproductive Health

Dear Dr. Chandra-Mouli,

RE: Manuscript #REPH-D-17-00040

Thank you for the valuable comments and the opportunity to resubmit our manuscript entitled, “Parents' and teachers' views on sexual health education and screening for sexually transmitted infections among in-school adolescent girls in Kenya: A qualitative study.”

We have carefully reviewed the Reviewers’ comments and have revised the manuscript based on their suggestions. In this cover letter, we have provided point-by-point responses to the comments by the three Reviewers and the Editor. Our responses are provided below, in bold. We
hope that our responses sufficiently address the raised questions and concerns in the review of our manuscript.

We thank the Editor and the Reviewers again for the opportunity for our manuscript to be considered for publication in Reproductive Health. We believe that our manuscript was strengthened by the changes discussed below, and we hope you will consider it acceptable for publication. Please let us know if you have any additional questions or concerns.

Sincerely,

George Wanje, BA, MPH
Community Section Head
University of Nairobi/University of Washington Mombasa Field Site,
P.O Box 91276
Mombasa – 80103, Kenya
Phone: +254-(0) 53 8015598
E-mail: gwanje@uw.edu

Comments from Editor

Please include a point-by-point response within the 'Response to Reviewers' box in the submission system and highlight (with 'tracked changes'/coloured/underlines/highlighted text) all changes made when revising the manuscript. Please ensure you describe additional experiments that were carried out and include a detailed rebuttal of any criticisms or requested revisions that you disagreed with. Please also ensure that your revised manuscript conforms to the journal style, which can be found in the Submission Guidelines on the journal homepage.

We thank the Editor once again for the recommendation to revise and resubmit the manuscript. A point-by-point response has been provided to the Reviewers’ comments. For easy reference, we have highlighted all edits to the manuscript with the track changes function. A clean and track changes copy of the manuscript are attached. We have also reviewed the manuscript carefully to ensure that the formatting conforms to the guidelines of Reproductive Health.
Reviewer #1

1. Define which sexually transmitted infections.

We thank the Reviewer for this comment. We have defined which sexually transmitted infections (STIs) we were discussing in the manuscript. We have made it clear and elaborated in the manuscript that the STIs targeted for the school-based screening intervention were Chlamydia trachomatis, Neisseria gonorrhoeae, and Trichomonas vaginalis.

We have revised the Background section of the abstract to read:

“To successfully develop and implement school-based sexual health interventions for adolescent girls, such as screening for Chlamydia trachomatis, Neisseria gonorrhoeae, and Trichomonas vaginalis, it is important to understand parents’ and teachers’ attitudes towards sexual health education and acceptability of sexually transmitted infection (STI) screening interventions.”

We have made similar changes to the text in the other places in the manuscript where this point is applicable.

2. With adolescents dying of HIV faster than any other age group, are you talking about HIV testing and counseling in schools? This would be worthwhile. If so, then why only girls?

We thank the Reviewer for this comment. We acknowledge that the Reviewer makes an important point about HIV prevalence being high among adolescents of reproductive age. When we launched this study, we decided it would be an avenue to explore feasibility of any sexual health screening, and were not sure of the response in this community. Testing for HIV is an important next step.

We have revised the Background section and provided evidence to highlight the importance of screening and treatment of STIs in this age-group.

We focused on adolescent girls because they bear the greatest burden of STI incidence and morbidity including infertility, ectopic pregnancy, cervical cancer, and increased HIV risk.

The added paragraph on page 6 reads:

“Many adolescents and young people are sexually active [6] and therefore at risk of contracting STIs. Often, they do not know how to protect themselves from these infections [7]. A cross-sectional survey of STIs among adolescent girls in rural Kenya reported the prevalence of C. trachomatis, N. gonorrhoeae, and T. vaginalis at 2.5%, 0.6% and 2.5% respectively [8]. Data from a cross-sectional study of female adolescents in Uganda estimated the prevalence of C.
trachomatis at 4.5% [9]. Adolescent girls are more vulnerable to STIs because of predisposing biological and socio-economic factors [10-12]. Sexually transmitted infections may also increase women’s risk of HIV acquisition [13]. These data highlight the importance of STI screening among adolescent girls to prevent the spread of the infections and related complications.”

3. What is the legal framework for adolescents in Kenya?

We appreciate the Reviewer’s question, and agree it would be helpful to know the legal context for adolescents in Kenya. As such, we have added the below paragraph in page 8 of the Background section according to the most recent National Adolescent Sexual and Reproductive Health Policy.

“According to Kenya’s National Adolescent Sexual and Reproductive Health Policy 2015, the working definition of an adolescent is a person aged between 10 and 19 years, with the legal age of consent above 18 years [31]. Therefore, for adolescents from 15-17 years old to participate in biomedical interventions such as STI screening, parental consent is required in addition to individual assent from the participant. Adolescents from 15-17 years old who are married, pregnant, or have children are considered mature minors and are allowed to provide individual consent (without a parent) according to Kenyan law [32].”

4. Can adolescents access HIV testing or contraception without parental permission? These are critical issues you should address in the article.

We thank the Reviewer for this comment. We agree that addressing access to HIV testing and family planning services for adolescents are important issues. The 2015 Kenya HIV Testing Services (HTS) Guidelines recommend that HTS be offered to adolescents from the age of 15 years if they request testing, even where there are no signs of such children being emancipated minors. Prior to the change, adolescents below 18 years could only receive HIV testing if they had the consent of their parents or guardians, or were married and/or expecting a child. Limited youth friendly facilities also exist in the country for adolescents to seek services such as counseling on reproductive and sexual health, STI diagnosis, contraception and HIV testing. While HIV testing and counselling is free, most reproductive health services including STI screening and contraception are at a cost. For example, oral contraceptive pills and injectable cost approximately 0.50 USD. In public facilities, STI services where available, would focus on treatment of symptomatic conditions using syndromic guidelines, and not screening in asymptomatic girls.
In response to the Reviewer’s comment, we have added Kenya-specific data regarding adolescent HIV testing and contraceptive availability to page 26 in the Discussion section. These data help to place the parental consent requirement for STI testing in context.

“Parental consent is not required for adolescents from the age of 15 years seeking HIV testing on their own in Kenya [46]. The recent change in HIV Testing Guidelines has led to approximately 50% of Kenyan adolescents 15-19 years old knowing their HIV status [32]. Nevertheless, some health care providers still require parental consent, and this can be a barrier to HIV testing. Adolescents in the country can also access contraception services without parental consent [31]. However, guidelines differ when it comes to adolescents’ participation in health research, rather than participation in programs. Adolescents under the age of 18 years cannot legally participate in research without parental/guardian consent unless they are emancipated minors [32].”

5. How will this work relate to the work of PEPFAR/DREAMS?

We appreciate the Reviewer’s comment on how our findings will relate to the work of PEPFAR/DREAMS which aims to reduce HIV infections among adolescent girls and young women in 10 sub-Saharan African countries. Reducing STIs in this vulnerable group through screening and treatment could have a substantial impact in reducing HIV infection. We believe parents and teachers should be equipped with sexual and reproductive health knowledge to provide correct information on sex, STIs, and importance of adolescents screening and seeking treatment for these infections. Thus, we feel that our work complements the DREAMS program goal.

In response to this comment, we have added sentences to page 25 of the Discussion section, which read:

“Empowering parents and teachers to provide sexual health information to adolescent girls, including screening and treatment for STIs, could have a positive impact to adolescents’ health. This benefit would, in turn, complement the US President's Emergency Plan for AIDS Relief (PEPFAR) goal in implementing the Determined, Resilient, Empowered, AIDS-free, Mentored, and Safe women program (DREAMS) program, which aims to reduce new HIV infections among adolescent girls and young women in 10 sub-Saharan African countries.”

6. What is the current content of the Kenyan life skills education? When I looked at the content a few years ago, it was atrocious, but when I spoke to Nduku Kilonzo, Director of NACC at IAS in Durban in July 2016, she was working on changes - has anything happened?
We thank the Reviewer for the observation about the Kenyan Life Skills curriculum. The Kenya Institute of Education has not revised the Life Skills Education curriculum released in 2008 as a stand-alone subject. The curriculum is based on three main components 1) knowing and living with oneself, 2) knowing and living with others, and 3) effective decision-making including choices during sexual relationships. We agree that the curriculum is limited in provision of holistic sexual health education, and some components like sexuality are covered in general subjects like Biology and Religious Studies.

Topics such as condom use and safer sex are not fully endorsed. Instead, much of the focus is on puberty. In our interpretation of the teachers’ desire for more information on sexual health to equip them with knowledge to handle students’ questions, we have added a statement on page 26 in the Discussion section to recommend revision of the Life Skills curriculum.

“A review and revision of the existing Kenyan Life Skills Education curriculum to holistically address sexual health education could help to bridge the knowledge gap that exists among teachers, allowing them to provide additional important sexual health information to adolescents.”

7. What was presented to PTAs about the study?

We thank the Reviewer for this question. We have clarified on page 9 in the Methods section the information about the study that was presented during the Parents Teachers Association meetings. The included text reads:

“The research team introduced themselves to the parents and teachers. During these meetings, parents and teachers were invited to participate in IDIs and FGDs to understand their attitudes towards sexual health education and screening for STIs in adolescents (ages 15-17 years). The researchers explained that the overarching objective of the study was to evaluate the acceptability of school-based STI screening. Statistics related to STIs among adolescents in Kenya were provided. Since most attendees had not previously participated in research, the informed consent process was explained. A question and answer session followed the presentation.”

8. What did parents understand about the questions you asked them (p. 9, lines 6-15)?

We thank the Reviewer for this comment. In response, we have clarified the questions that we asked to parents, and what they understood about the questions.

Parents and teachers were asked questions including general knowledge of STIs, attitudes towards STI screening, and willingness to allow their adolescent girls to seek testing. Both
parents and teachers understood that they were being asked to provide information that would inform development of a STI screening intervention for adolescent girls. The use of probes during the interviews and focus group discussions (FGDs) allowed us to delve deeper into their understanding. Participants were also invited to ask questions and seek clarification if they did not understand the posed questions. To clarify on the Reviewer’s question, we have added the following sentences on pages 10 and 11 in the Methods section:

“All participants were encouraged to use the language they were comfortable either in Swahili or English or a mixture of both. The use of probes allowed the participants to provide more information on any given question and for the researchers to provide clarification where necessary. To ensure that participants understood the study questions, they were invited to ask any questions and answers were provided by the researcher. Participants were assured information they provided would help in designing a STI screening intervention for adolescent girls.”

9. It is well known that adolescent sexual activity is not condoned - what can you tell us and Kenya that will move our field forward? Look at the work of Lucie Cluver, who has worked with adolescents in South Africa to design services.

Thank you for this comment. We agree that adolescent sexual behavior is not condoned, especially in Africa. We have referenced work in the Background section (such as Ayalew M et al 2014, Bastien S et al 2011) to highlight the challenges that persist in addressing sexual health discussions with adolescents. We also thank you for the recommendation to review the work of Lucie Cluver in South Africa. We acknowledge and reference her work in relation to our study results. We have added text in the Discussion section on page 25 to read:

“Our results highlight the need for emphasize improving parenting skills through development of interventions geared towards parent-adolescent communication around sexual health in Africa. Such interventions could form a foundation for stronger sexual health programming for adolescents [38]”

Interestingly, while parents avoided talking about sex and STIs to their adolescent girls, they were supportive of an STI screening intervention, implying they were aware their children might be engaging in sex. We feel that our evidence of acceptability of STI screening adds values to literature in adolescent health. To emphasize this point, we have added sentences on page 29 in the Discussion section that read:

“Our study results highlighting parents’ and teachers’ views on the acceptability of STI screening suggest that expanded interventions are possible in this community. Additional work is needed to explore the acceptability of potentially more sensitive topics including HIV testing and provision of contraception.”
10. Did you correct the inaccurate knowledge of parents? (example: Schistosomiasis is an STI; you can acquire syphilis through latrines, p. 13, lines 28-58).

Thank you the question. All misconceptions about mode of transmission for STIs, the different types of STIs, and any questions from participants were fully addressed at the end of the interviews and FGDs. The interview/FGD session ended with a brief presentation on facts about STIs. Informational handouts about STIs were also distributed. We have incorporated this information in the manuscript.

11. What services would you propose be added for which STIs?

We thank the Reviewer for this comment. Our manuscript focused on understanding the acceptability of screening for C. trachomatis, N. gonorrhoeae and T. vaginalis in the context of research. This formative work was used to plan a pilot study of STI screening in adolescent girls (manuscript submitted). In general, we feel that STIs and their morbidity are an important consideration for adolescent girls in Africa. However, we recognize that additional research on the prevalence STIs in this population, as well as the costs and budget impact of different screening strategies are needed to make informed recommendations about providing services on a broader scale. We feel that this discussion is beyond the scope of our current manuscript, so have not changed the manuscript in response to this comment.

12. We know that syndromic management is not very effective, particularly for girls. Which tests for which STIs?

We thank the Reviewer for this comment. We have added the following text on page 27 in the Discussion section:

“Adolescent girls’ urine samples were tested for the presence of C. trachomatis, N. gonorrhoeae and T. vaginalis by transcription mediated amplification using the Hologic Aptima Detection System (Hologic, San Diego, CA, USA) (manuscript submitted). The use of 20-30 milliliter (ml) first-catch urine specimen to test all the three STIs led to wider acceptance and success of the intervention.”

13. Leaving HIV out of this article is criminal, when so many adolescents, particularly in Kenya, are dying of HIV.
We appreciate the Reviewer’s comment. We agree that HIV is important in our setting and have provided supporting data on our rationale to focus on the three STIs in response to your second comment.

Of note, we initially considered including HIV testing in our grant proposal. However, given the lack of data from our community, we were concerned that there might be a great deal of resistance to HIV testing because of the stigma and potentially life-threatening nature of the disease. Thus, we chose to start with urine-based STI testing alone. This has provided us with invaluable information about the community’s willingness to engage in discussion around the issue of adolescent sexual health.

We also note that there are key differences in Kenyan law as it relates to adolescent testing for HIV versus STIs (Please see our response to comment 4). To address this point, we have included text in our study limitations on page 28 that reads:

“Third, our study did not address parents’ and teachers’ views on adolescent HIV testing. Importantly, the current HTS guidelines in Kenya allow adolescents to seek HIV testing without parental consent, but this guidance does not apply to other STIs.”

Reviewer #2

1. Need to give some more information on what are the existing school health services available and what are the publicly funded STI Screening and treatment programs available in Kenya.

We thank the Reviewer for this great suggestion. We have responded to Reviewer 1 on the available school health curriculum (Please see our response to Reviewer 1 comment 6). Schools do not offer sexual health services. There are no public funded STI screening programs, with most health facilities offering syndromic management of STIs.

In response to this comment, we have added the following information in the Background section on page 7 and 8:

“The Kenyan Life Skills curriculum is limited, and provides basic sexual health education with a focus on puberty. Some components of reproductive health, like sexuality and reproduction, are covered in other subjects like Biology and Religious Studies [29].

The availability of youth friendly services for reproductive and sexual health is limited in Kenya. Only 7% of health facilities offer access to an adolescent-friendly environment for seeking information and services for sexual health problems including STIs [30]. Screening and treatment for STIs is not free, even in public health facilities.”
2. Need to elaborate on how did the researchers pose the issue of STI screening to the group i.e. method of screening, does that include HIV testing as well?

We thank the Reviewer for this comment. We did not include HIV testing since it was not the focus of our study and have included it as a limitation (Please see our response to Reviewer 1 comments 2 and 13).

We have added the text below on page 11 in the Methods section to elaborate how we posed the issue of STI screening:

“Both parents and teachers were asked what they knew about the benefits of STI testing, and about their knowledge of different screening methods. If participants did not know of any method, the interviewer used probes to seek for further information, such as, “Have you heard of people using genital swabs or urine to test for STIs?”

3. How were these 5 parents and 5 teachers selected from a bigger lot that might have volunteered for participating in the survey?

We thank the Reviewer for this comment. We had a difficult time recruiting parents to attend sessions. To triangulate the data from the 4 FGDs (2 with parents and 2 with teachers), we selected all parents and teachers who had volunteered for the study.

In response to your comment, we have added a sentence in the Methods section on page 10 to clarify on how the interview participants were selected:

“All parents and teachers who volunteered to participate in the study were included in the FGDs and IDIs according to their preference.”

4. Purpose of doing this data collection was to develop school based health interventions which get lost in the discussion and conclusion part of the paper.

We thank the Reviewer for this comment about the larger purpose of the study being highlighted towards the end of the manuscript. We agree that we should provide more detail about the study’s intended purpose for understanding the attitudes of parents’ and teachers’ towards STI screening. We have revised the manuscript in several places to address this comment.
First, we added a sentence on page 8 in the Background section which reads:

“Data from this exploratory qualitative research informed development of a pilot study of a school-based STI screening intervention for C. trachomatis, N. gonorrhoeae, and T. vaginalis in adolescent girls (manuscript submitted).”

In addition, we have added the following text in page 28 of the Discussion section:

“Few studies have focused on STI screening acceptability in Africa. In a follow-up study, these rich data informed the development of a successful school-based STI screening intervention.”

5. Purpose of taking a varied representative group for IDI did not reflect in the responses and the discussion there of any differences that might have been elicited.

We appreciate the Reviewer’s observation. Our sampling frame was meant to capture broad differences that might exist in participants’ demographic and socioeconomic backgrounds. We felt attributes such as gender, religion, education level and others would impact participants’ views on the topic of adolescents’ sexual health and STI screening. However, we did not find substantial differences in the responses either by any of these attributes. As such, in response to this comment, we have included a new sentence on page 24 in the Discussion section which reads:

“We did not find substantial differences in views about adolescents’ sexual health and acceptability of STI screening by parents’ or teachers’ gender, religion, education level, or socioeconomic background.”

6. Why only girls high school were selected...? Are boys not vulnerable?

We appreciate the Reviewer’s question on our selection of only girls’ school to participate in the study. We agree that boys are also vulnerable to STIs. In response to this question and Reviewer’s 1 comment, we have provided rationale for choosing to focus on girls in the Background section (Please see our response to Reviewer 1 comment 2). Adolescent girls typically initiate sex earlier, and with sexually experienced older partners. As a result, adolescent girls are vulnerable to STIs at an earlier age compared to boys. We also addressed the fact that girls experience greater morbidity from STIs compared to boys. We have added the text below in page 28 of the Discussion section:

“Fourth, we focused on girls because they typically initiate sex earlier [5], and have greater morbidity associated with STIs [47, 48], compared to boys. Nonetheless, we acknowledge that
some boys may be at risk for STIs, and that our data may not reflect parents’ and teachers’ views on STI screening in male adolescents.”

7. STI screening among adolescent girls is a very limited focus intervention that the study aims to achieve if the other most important morbidities associated with anemia and menstrual complaints, nutrition etc. are not covered. STI screening of sexually active girls can be a component of overall health checkups.

We thank the Reviewer for this comment. We have highlighted in the manuscript and also in Response to Reviewer 1 (Please see our response to Reviewer 1 comment 2), the importance of STI screening among adolescent girls. We acknowledge that in developed countries where most studies have been conducted on STI screening, the service can be a component of overall health check-ups. However, in Africa and in the Kenyan context, adolescents access to basic reproductive health care is very limited. Most facilities do not offer STI screening services, and the practice is to offer syndromic treatment for symptomatic complaints.

Because our data do not address anemia, menstrual complaints, or nutrition, we do not feel that we can comment on these in the manuscript.

8. References need to be corrected and adhered to journals style

We thank the Reviewer for this feedback. We have formatted the references according to Reproductive Health’s referencing style.

9. Too small a sample to draw any definitive conclusions

We appreciate the comment by the Reviewer about our sample of participants for the study. We note the concern of the Reviewer. That said, we felt our sample size was adequate to gain understanding of parents’ and teachers’ views on STI screening for adolescent girls. The results of this qualitative study informed the development of the actual STI screening intervention which was carried out in these settings. We have added the text below on page 28 in the Discussion section to address the concerns regarding the study sample:

“Despite the relatively small number of interviews and FGDs in this study, we did not find new themes across the conducted FGDs and IDIs. We also triangulated our data with 10 IDIs to enrich our understanding of parents’ and teachers’ views towards adolescent girls’ sexual health. Data from this study were important, and suitable for planning an STI screening pilot study. We also felt that these data would be of interest to other researchers and program planners with an interest in screening for STIs or addressing adolescent sexual health in similar populations.”
Reviewer #3

This paper presents a thoughtful and much needed study on STI testing for adolescent women in Mombasa, Kenya. Employing qualitative interviews and focus groups, the study examines the attitudes of parents and teachers on STI testing for adolescent women. The paper provides helpful information about the attitudes of two influential groups on adolescent sexual health and has important implications for future programs.

Overall, the paper is well-organized and clear. I have a few comments and questions that could strengthen the paper further:

We thank the Reviewer for the helpful comments and recommendations to strengthen the manuscript. We are pleased that the Reviewer felt that this manuscript would make an important contribution to the field, with revisions.

1. It would be helpful to provide some information about the differences between the focus group discussions and interviews. Was there a different orientation for each type of interview? Did questions differ by FGD/IDI?

We thank the Reviewer for this comment. We agree that providing more information on the methods would be beneficial. As described on page 8 of the Methods section, the interviews were intended to elicit individualized stories and perceptions about adolescents’ sexual health, while the FGDs were employed to capture data on cultural norms. The questions in the IDIs and FGDs covered the same broad topics. We did not find differences in participants’ responses concerning adolescent girls’ sexual health from the group of IDIs and FGDs. For example, STI screening acceptability was concordant in data emerging from both the IDIs and FGDs.

We have expanded the study procedures on page 10 with the following sentence:

“The questions in the IDIs and FGDs covered the same broad topics on general knowledge of STIs, individual/community attitudes towards STIs and testing, and reproductive health education.”

We have also added the below sentence in the Discussion section on page 24:

“There were also no differences in participants’ expectations concerning adolescent girls’ sexual health from the IDIs and FGDs.”

2. Overall it could be helpful to know if there were any differences in attitudes between male and female parents. I wonder whether fathers or mothers might have different priorities or concerns with testing. Similarly, were there differences between different types of teachers?
Thank you for this comment. We agree that it would be worth pointing out differences that existed within and outside the group types (parents and teachers). However, the only notable difference was in the lack of sexual health discourse theme. Mothers noted being more involved than fathers in their daughters’ sexual health. We have made this contrast of female and male parents views in the manuscript.

We have added the following paragraph and quotes on page 13 and 14 in the Results section:

“Most female parents reported being more engaged with their adolescent girls’ sexual health when the topic arises as opposed to male parents. One female parent added mother-daughter relationships determines the depth of discourse between the two. Some fathers noted that the African culture and even religion prevented them from being close with their adolescent girls.

According to us mothers, we feel it is not easy for fathers to discuss girls “personal issues”. It is the duty of the mother, unless there is a situation where the girl has become pregnant then he becomes angry, but otherwise it is not easy for fathers to talk freely just like that to girls

(42 year old female parent, FGD)

In African setting and culture, it a taboo to talk to your child about sex, especially my daughter. I normally buy educative books for her, but discussions are directed to the mother.

(54 year old female parent, FGD)

I think it’s mainly because of religion, because you will find that personally when my daughter is on her periods (menstruating) you will find her mother telling me to buy her things (pads) or mostly when you go to the supermarket you will see the mother getting it and putting it in the basket (laughs). You will see the communication is sort of remote and not direct and that is how you will know [she has started menstruating].

(60 year old male parent, IDI)”

We did not observe major differences in teachers’ responses by gender. However, the biology teachers in the study seemed to know more about STIs than other teachers

In response to the Reviewer’s comment, the revised paragraph on pages 17-18 now reads:

“Most teachers especially those who taught Biology seemed to be knowledgeable about STIs, including recognizing that some infections are asymptomatic. However, some teachers had misconceptions on how STIs are transmitted. One teacher noted that sharing of toilet seats and clothing would result in transmission of STIs. Teachers were also aware of the negative health consequences of untreated STIs. However, most of them felt that they needed more information on sexual health, including STIs, to enable them to adequately address the questions posed by their students.
Well right now because I have learnt a bit of the STI’s, I know men do get the symptoms early, they get to know of the infection earlier than the women. For the women it takes some time. So for those men who are bright enough they will even seek treatment earlier before even their wives have gone to be treated mmhh.

(41 year old female teacher, IDI)

They can either be sexually transmitted, or you can either get them through things like sharing toilet seats or in some small percentages sharing things like swimming costumes. Yeah.

(27 year old female teacher, FGD)

Even in the class while teaching, we biology teachers sometimes are asked questions until you wonder, and because you are not a doctor you push the question forward to the next lesson so that you go and research.

(46 year old male teacher, FGD)”

3. It would be helpful to provide some further explanation to the quotes about misconceptions about STIs and to contrast teachers and parents further. In listing misconceptions do you have information on which STIs came up most frequently or were most frequently misunderstood?

We thank the reviewer for this suggestion. We have provided further explanation and added quotes for the theme on knowledge of STIs. We have also contrasted teachers’ and parents’ misconceptions by adding explanation before the quotes. We have reviewed the results again, and observed that most of the misconceptions related to participants not understanding the different STIs and how they are transmitted. Although the teachers had a slightly higher level of STI knowledge compared to parents, some also reported “sharing toilet seats and swimming costumes” as mode of transmission.

The most often mentioned STIs, by both parents and teachers, were gonorrhea, syphilis and HIV. There was a general attitude that STIs have become less common. This perception seemed to relate to the greater focus on HIV.

We have revised the theme about parents’ and teachers’ knowledge about STIs from pages 16 to 18 to read:

“Parents’ and teachers’ knowledge about STIs

Most of the parents believed that they had inadequate STI knowledge, including lack of knowledge about different types of infections and how they are transmitted. Common STIs that parents were able to remember included syphilis, gonorrhea and HIV. Parents were asked to
remember the STIs they knew and probed further to establish their accuracy in naming STIs and description of signs and symptoms. The most frequent themes during the IDIs and FGDs related to limited knowledge on the subject of STIs. One participant noted that adolescent girls can acquire STIs through low standards of hygiene and not necessarily sexually. Some participants held misconceptions about STIs being transmitted by dirty water or sharing toilets.

What I know is there are several types of STIs. If you sit on a toilet where someone who is infected has used, especially the sitting toilets you get these STIs.

(44 year old male parent, FGD)

I have not heard a lot about STIs, but in the past we used to hear a lot about mmh, I don’t know. Bilharzia [schistosomiasis], that’s the disease, yeah. I think something like that. If you are with a man who has it, they will infect you and you will urinate blood. Something like that, that’s the one STI I remember.

(45 year old male parent, FGD)

From what I know, I believe gonorrhoeae is transmitted through direct intercourse, and unprotected sex. Syphilis can also be gotten through unprotected sex as well as the latrines. Maybe one of you has the disease and their urine got on the latrine seat. The disease is not something that dies off quickly, so when you go and sit on the toilet seat, you also get infected.

(38 year old female parent, IDI)

Most teachers especially those who taught Biology seemed to be knowledgeable about STIs, including recognizing that some infections are asymptomatic. However, some teachers had misconceptions on how STIs are transmitted. One teacher noted that sharing of toilet seats and clothing would result in transmission of STIs. Teachers were also aware of the negative health consequences of untreated STIs. Some of the teachers were aware that STIs can be asymptomatic. However, most of them felt that they needed more information on sexual health, including STIs, to enable them to adequately address the questions posed by their students.

Well right now because I have learnt a bit of the STI’s, I know men do get the symptoms early, they get to know of the infection earlier than the women. For the women it takes some time. So for those men who are bright enough they will even seek treatment earlier before even their wives have gone to be treated mmhh

(41 year old female teacher, IDI)

They can either be sexually transmitted, or you can either get them through things like sharing toilet seats or in some small percentages sharing things like swimming costumes. Yeah

(27 year old female teacher, FGD)
To tell you the truth, I know of syphilis, gonorrhoeae and HIV. I have forgotten the others apart from those. These three are the ones that are usually talked about more so even if there are others they are not as strong to stick in your mind

(40 year old female teacher, IDI)

Even in the class while teaching, we biology teachers sometimes are asked questions until you wonder, and because you are not a doctor you push the question forward to the next lesson so that you go and research.

(46 year old male teacher, FGD)

4. Was knowledge assessed in any type of systematic way (e.g. checklist of diseases, symptoms, etc.)? How did the research team determine how much knowledge an individual had about STIs?

We thank the Reviewer for this comment. We accessed participants’ knowledge by asking them open-ended questions on the diseases and symptoms. Using probes, for example “Okay, and maybe are you aware of other STIs?”, helped us to gain further insights from participants. From the information we collected, participants who were able to accurately define STIs, describe their signs and symptoms and provide specific examples of the infections such as chlamydia, gonorrhoeae, herpes simplex, chancroid, syphilis, trichomonas and HIV were regarded as knowledgeable on the topic. In response to this comment we have revised the theme regarding knowledge of STIs. Please see our responses for Reviewer 3, comment 3.

5. Did teachers explain at all why they thought parental consent for screening was important?

Thank you for this comment. We did not explore further why teachers thought parental consenting was important because it is known that parents have to give their consent for any activity involving their girls’ health. This is legal in Kenya. In response to this comment, as well as Reviewer 1, we have added text to the manuscript. This is shown in the section for Reviewer 1, comments 3 and 4.

6. Stigma is a major barrier in STI testing among adolescents globally. It seems that this theme came up in some of the results. Sharing STI results seems like it could have major implications for young women's experiences of stigma. Information related to how stigma was and was not acknowledged or understood by parents and teachers could provide important information for future programs.
We thank the Reviewer for this comment. We agree that stigma is a major barrier for adolescent girls’ participation in STI screening. The mode of transmission for the infections being sexual evokes issues related to morality and promiscuity. Despite their general acceptance of the intervention, both parents and teachers acknowledged there could be potential stigma for adolescent girls who screen. For example, both parents and teachers did not want the screening intervention to be conducted in the schools, as the clinic was felt to be more private.

We have added quotes and text under the theme of STI screening acceptability and disclosure of results on page 20 and 21 to address the raised concern:

"Both parents and teachers acknowledged there could be potential stigma for adolescent girls who screen for STIs. Most of the participants felt that STIs are associated with immorality. Adolescent girls who undergo STI screening might be labelled as promiscuous. Participants also mentioned that the screening intervention should not be done in schools to minimize stigmatization of the girls by their teachers and peers.

“It is important for girls to be tested through schools but other parents might think the reason the daughter is volunteering is because she is doubting herself”

(59 year old female parent, FGD)

“I think there is stigma on their sexuality and morality, because somebody is being tested for STIs. Their morality is very questionable.”

(27 year old male teacher, FGD)

“I think aah if they are tested in schools it can bring controversy. It can bring some kind of pandemonium (laughter). Hospital set up is better because here [in schools] they might also suffer victimization from their colleagues who are not being tested. So even if they volunteer, those who do not volunteer will start giving them nicknames.”

(25 year old male teacher, FGD)

7. The larger purpose of the study was not discussed fully until the end (to pilot a school centered STI testing intervention) it would be helpful to state this up front in the background.

We thank the Reviewer for this suggestion. We agree that the purpose of the study should be introduced earlier in the manuscript. The changes we made to the manuscript to incorporate the suggestion are presented in our response to Reviewer 2 comment number 4.