Reviewer’s report

Title: Soiling, soap, and support. A qualitative understanding of the effects of reusable sanitary pads and puberty education: Implications for future research and practice.

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Reviewer: Nancy Muller

Reviewer’s report:

I appreciated the opportunity to review this interesting manuscript. The research adds much needed insight on both the need for standardized indicators relevant to menstrual health and highlights challenges with how data is reported. These insights will be useful to the research community conducting qualitative and quantitative research among adolescents on menstrual product acceptability, usability, performance, and their environments of use in low and middle income countries (LMIC).

Some specific comments for consideration:

- Abstract; Objectives: The description of the study objective provided on pg 5, lines 3-5, was more detailed and useful. It would be helpful to add the study location in the objective.

- Plain language summary: It would help the reader for the four intervention conditions (education, reusable sanitary pads, education with reusable sanitary pads, and control) to be consistently listed in the same order. Line 8-9 is incomplete. It would also be helpful to be reminded of the socioeconomic situation of the broad research population. It sounds as if they are quite impoverished.

- The numbers of girls in each of the intervention conditions was small. How did you decide on interviewing this number of girls per arm? Even though qualitative, it is difficult to draw conclusions on the basis of these small numbers. However, the results are interesting and point to directions for future research which I believe is your finding.

- Pg 5 - It would be helpful to have a description of the AFRIpad. It is different from many other reusable cloth sanitary pads used in LMIC.

- Pg 7 - What is the intervention theory of change. First mention of this, I believe.

- Pg 9 - Lines 1-3. These are important findings. It would be valuable to have evidence for these statements. How many girls reported this? Were girls who used improved cloth always absent?

- Pg 9 - As is noted by the authors, it is confounding that the education only intervention taught girls to sew sanitary pads. Were you able to determine differences between school attendance, acceptability, prevention of leaking, confidence etc among the girls who used home made pads?
- Pg 9 - Line 25-27. When cloth is referred to, it is not clear whether that is the pads sewn from cloth mentioned in the paragraph above or improvised found cloth. Also, the statement that fewer pairs (of underwear?) were worn over the AFRIpads. Aren't the AFRIpads worn over the underwear?

Pg 10 - This detail on the frequency of changing cloth and the need to go home to change and wash their other cloth is revealing and not commonly reported.

Pg 10 - Changing absorbents:

Line 1-9. This is an important finding that girls in education only and control sites went home to change their cloth.

This section highlights an important finding - the apparent value of education to girls and also the girls' time requirements to manage menstruation. In some cases, girls are walking home, washing and putting out to dry cloth, and walking back to school.

Pg 10 - Line 24. Were pads disposed in the latrine itself or in a disposal bin in the latrine? Do you know if the latrines were pit or flush latrines?

Pg 11 - Line 10-12: The issue of disposal of menstrual products is ignored by most research. Did girls discuss where they disposed of used products, cloth or other? Disposal bins are not common, from limited research in this area.

Pg 12 - Lines 11-13. Powerful finding, though its not clear whether the absorbents referred to throughout this paper are the improvised absorbents or if this includes the AFRIpads and the purpose made cloth sanitary pads. It would be helpful to define these terms up front.

Pg 12 - Line 15-16: Word omitted? Perhaps "longer."

Pg 12 - Line 25- 26. Did the research capture what the frequency of genital irritation was? Was it any different for AFRIpads vs other absorbents? Did researchers or participants define what "an extended time" means?

Pg 18 - Line 7: It is not clear what "keep clean but copied cloth use" means.

Pg 19 Line 12-14 - Does pads here refer to all absorbents or to AFRIpads alone?

Pg 19 - Line 15-16. This is important.

Pg 21 - Line 3-6: This is not clear. Girls in the education intervention shared info which benefitted peers. It is not clear what is meant by girls in the education conditions (education intervention, correct?) likely indirectly benefitted from the intervention. Perhaps you mean from non-education schools?
Pg 21 - Line 9-11: This is an important point regarding a degree of lack of variation in effects across intervention arms.

pg 22 - Lines 5-8: This is an important finding regarding measurement of school attendance that needs to be considered in research on impact of menstruation on school attendance.

Pg 22 - Line 10-11: Have the local remedies for soap or cleaning been described?

Pg 22, Line 12: Spelling of "been."

Pg 22 - Lines 23-25. This statement is not clear.

Pg 23 - Implications for practice

Line 8 - The wording might be more accurately described as "beyond increasing access to sanitary products..."

Lines 9-16: This conclusion appears surprising and overstated given the small size of this study and the broader benefits and requirements of improved WASH facilities in schools. Having girls leave school to wash and change at home is not a desirable outcome, as you point out (lines 15-16.) Having water for hand-washing and a place to change the pad is required, in any case. It is not clear on what basis the conclusion was drawn that the provision of soap may more affordably improve the effectiveness of product use. This presupposes that girls would be able to keep the soap for their personal use.

Lines 17-18: Do we know if girls are comfortable keeping used cloth pads in a plastic bag in school for half a day? Do these girls from low-income families have school bags or backpacks in which to store the plastic bag? The acceptability of this approach to management of menstrual products would need to be evaluated.

Line 19-23: Acceptable approaches to management of menstrual products, whether disposable or reusable, requires more guidance from girls and women, and system managers in low-resource settings, and more research to evaluate the feasibility of proposed interventions. All these interventions require increased education for the entire community: girls, mothers, grandmothers, teachers, boys, fathers, and community leaders to help remove the stigma that leads to the need to hide evidence of menstruation, as you note on pg 24 lines 22-24.

Pg 23-24 Lines 24-12 This is excellent information.

Pg 25: Conclusions: Lines 6-7: It seemed that pad provision alone was also thought to have increased awareness and comfort discussing menstruation among peers. The finding that genital irritation and vaginal infections were widespread, not recognized by girls, and were under-reported is important.

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