

Appropriate Solutions to Reusable Sanitary Products in Uganda

Dr. Roberts/Cal Poly/ Public Health
Bella Mualem, Tisa Tehranchi, Arie To

Background

This study is centered around menstrual hygiene management (MHM), which is defined by UNICEF as women and girls having access to clean menstrual products, a safe and private place to change, access to hygienic soaps/other cleaning materials, and finally convenient facilities to dispose of used products.¹ MHM is a disregarded topic in low resource, rural environments due to cultural taboos, access, a lack of education, sanitation issues, etc. Poor MHM practices have shown to be linked to higher rates of absenteeism for young girls at school and greater stress and anxiety surrounding changing the menstrual products, etc.

This issue is also prevalent in Uganda, the setting of this study, where JR was working at a clinic and noticed high rates of vaginal infections. After realizing that a likely cause of the infections could be the menstrual products the locals were using, JR wanted to work with the Ugandan women to create a product that would minimize risk for infection and provide comfort.

This study aimed to create a reusable menstrual pad that is comfortable, easy to wash, and accessible to local Ugandan people. By using the locally sourced Ankara fabric in the prototype, the end result will be easily replicable by women in Uganda.

Methods

Literature Review

The study began with a review of literature found on Google Scholar, EBSCO, PubMed, and Web of Science. A set list of search terms was created using Boolean terms and used in each of the databases to find the most relevant articles that could be used to develop the product design. All articles found were then uploaded to Covidence to remove duplicates as well as to begin the screening process. Once duplicates were taken out, 121 articles were screened by title and abstract. From those, 53 articles were screened by full text, leaving 35 articles that were used to develop the product prototypes. During each screening process, two notes were required for each article and any conflicts were resolved by JR. A summary of the screening process can be seen in Table 1.

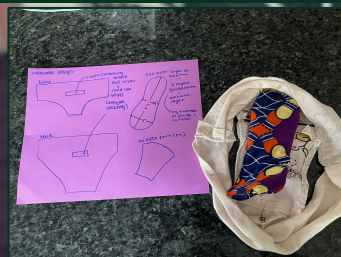


Fig A. Shows the drawn design and finished product of the underwear insert design.

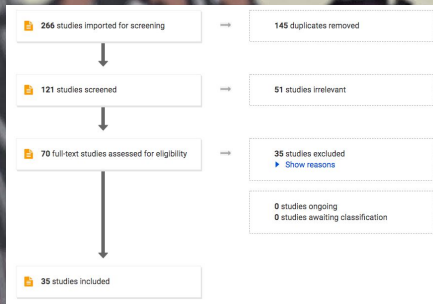


Table 1. PRISMA table provided by Covidence showing the screening process

Product Design

Following the literature review was the creation of individual designs of a prototype. Using the information that was learned about product design and challenges specific to our population of interest, each lab assistant designed their own prototype. Things that were taken into consideration when planning a feasible design were: access to underwear, absorbency and size of the pad, cleaning practices, and privacy or discreteness.

The Cal Poly Frost Foundation supplied materials for the design process including sewing kits with needles and thread, pins, scissors, cardstock for the sketching process, and a mini sewing machine. The first step in the design process was to use the cardstock provided and sketch a plan for our prototype. Then, the Ankara fabric were cut to size, pinned, and finally sewed all together, either by hand or the sewing machine. After the pads were fully constructed they were tested by the lab assistants currently menstruating or with water to test for absorbency and quality of design. All tests were noted, and any necessary changes needed in the product design were made.

Prototype 1 was a special period underwear (Fig A). The underwear designed is a holder for reusable pad inserts that can easily snap in and out of place for ease and washability. The underwear and reusable pad inserts were both constructed out of the traditional Ankara fabric. The absorbent material used within this design was a combination of gauze and cotton.

Prototype 2 also includes the concept of a holder and reusable pad inserts (Fig B). In this design, the holder mimics the shape of many disposable pads, with the wings that wrap around and snap underneath the underwear. In this design the reusable pad inserts snap into the holder for a quick and easy change. Both the holder and the insert were made from the traditional Ankara fabric with five layers of gauze used as the absorbent material within the insert.

Prototype 3 was all in one piece, so to reuse, the whole pad needs to be washed. This design had half circle wings that fold underneath the underwear and snap to hold the pad in place (Fig C.). The circular design of this prototype was meant to give privacy and discreteness to the product, in hopes that when being washed and dried it would be less recognizable as a menstrual pad. The circular product was made out of the Ankara fabric and an entire roll of gauze was used as the absorbent material.

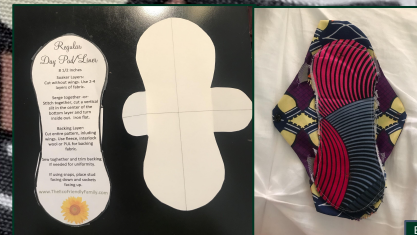


Fig B. shows the prototype design with the wings that connect under the underwear reusable snap in inserts.



Fig C. shows the drawing and finished product of the third prototype with the circular shape.

Next Steps

Now that we have completed the literature review, prototype design process, and each tested our own design we will be pursuing further testing in the local community in Uganda. From this product testing we hope to gain insight on what works well in our design and if there are any changes that can be made before greater production and distribution. In addition this testing will inform us of the feasibility of the design for everyday life. Once a design is perfected we can begin the educational portion on how to use and construct our reusable pads.

Check out how to use our prototypes here!

References:

¹ UNICEF. (2019). Guide to Menstrual Hygiene Materials.