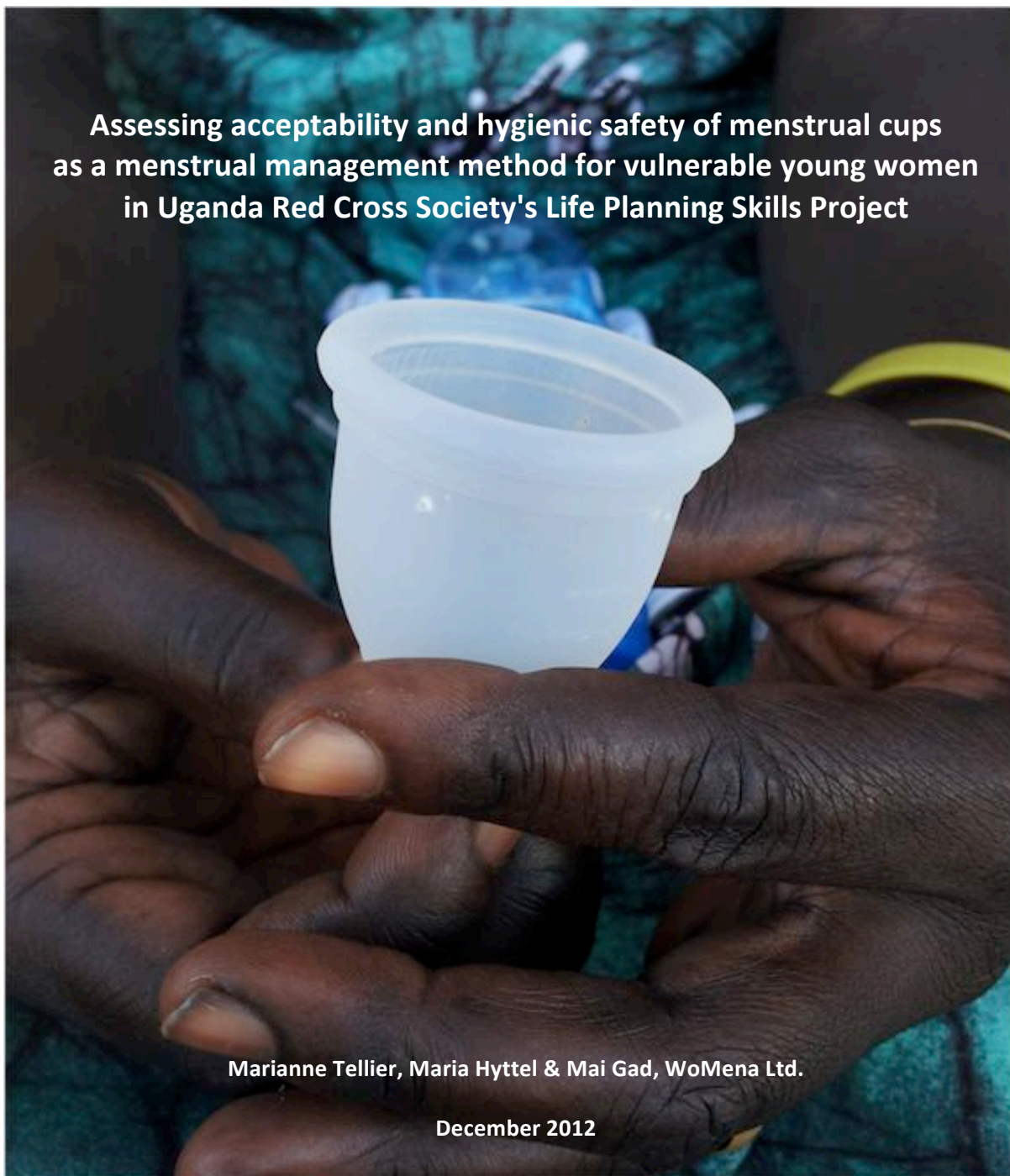




## Pilot Study Report

**Assessing acceptability and hygienic safety of menstrual cups  
as a menstrual management method for vulnerable young women  
in Uganda Red Cross Society's Life Planning Skills Project**



Marianne Tellier, Maria Hyttel & Mai Gad, WoMena Ltd.

December 2012

Photo: Mai Gad

## Executive Summary

<b>Study objectives</b>	The objectives of this study were to assess young girls and women's acceptability, suitability and hygienic safety of using menstrual cups in Uganda, when introducing cups through the Uganda Red Cross Society (URCS) Life Planning Skills (LPS) project framework. In the long-term, this is intended to support the formulation and implementation of policies and programs aimed at introducing acceptable, suitable and safe methods for menstrual management, thus strengthening reproductive rights and services for girls and women in Uganda.
<b>Methods</b>	31 study participants (female "Life Planning Skills" beneficiaries as well as Uganda Red Cross Society volunteers and staff from URCS Kitgum) were given a menstrual cup and trained in its correct use and cleaning. At baseline and follow-up (after 3-5 months) gynecological check ups, a structured questionnaire survey, semi-structured interviews and focus group discussions were conducted.
<b>Results and discussion</b>	<p>The overall experience of trying the menstrual cup was for all participants either <i>very good</i> (75%, n=18) or <i>good</i> (25%, n=6). Some had found it a bit difficult to insert/remove the menstrual cup in the beginning, but all participants had found it comfortable after a few times. Participants reported that cup use make them "free" to do what they normally do when they are not in their period, e.g. walking, biking and attending social gatherings. More specifically, when using a menstrual cup they did not have to worry about embarrassment related to leakage and stains on clothes as with cotton wool and cloth methods. Menstrual cups were more comfortable than pads/cotton cloths, which may cause skin irritation. In addition, cup use lead to time and money savings as cups needed less changing, took less time and resources to clean, and less money had to be spent on soap and/or disposable pads/cotton wool. Altogether, cup use lead to increased physical, mental and social comfort. Friends, relatives and partners were supportive and participant stories indicated a high interest in menstrual cups among girls and women in general.</p> <p>The gynecological checks indicate that menstrual cup use neither caused reproductive tract infections nor increased the risk of urinary tract infections among study participants. The test results and the descriptions of cleaning practices from the interviews indicate that they have understood and have been practicing the most important procedures related to hygienic safety when using and cleaning their menstrual cup.</p>
<b>Conclusion</b>	The menstrual cup appears to be highly acceptable, practical and hygienically safe to use and can contribute to improve the quality of life for girls and women in similar settings. In addition, money saved can be used for e.g. soap for improved menstrual hygiene. This pilot study seems to have reached its objectives of empowering vulnerable women and young girls through improved menstrual management.
<b>Recommendations</b>	Menstrual cups should be made available and affordable for vulnerable young girls and women in Uganda. The Life Planning Skills project model and the training curriculum developed on menstrual cup hygiene and use for this pilot study can serve as example and inspiration for incorporating menstrual cups into LPS projects in other URCS branches as well as into other similar projects on reproductive health.

This study and report was prepared by WoMena Ltd. WoMena is a group of Danish professionals from public health and sociology specialized in reproductive health issues, including menstruation.

**Recommended citation:** Tellier M, Hyttel M, Gad M (2012). *Pilot study report, WoMena Ltd: Assessing acceptability and hygienic safety of menstrual cups as menstrual management method for vulnerable young women in Uganda Red Cross Society's Life Planning Skills Project*. Kampala, Uganda.

## Introduction

In Sub-Saharan Africa, many poor women and girls do not have access to appropriate menstrual management methods, i.e. methods that are effective, comfortable, convenient, affordable and safe to use. They therefore resort to using other available materials, e.g. strips of cloth, tissue paper, school exercise books, pieces of sponge torn from mattresses, barch cloth and other unhygienic methods.<sup>1,2</sup>

The lack of appropriate menstrual management methods has far-reaching implications for reproductive infections,<sup>3</sup> physical, social and mental well-being of women and girls, and has been linked to infrequent school attendance.<sup>1</sup> In Uganda, absenteeism and dropout rates are high for rural girls for reasons often linked to their reproductive health, especially menstruation. According to FAWE (Forum for African Women Educationists) menstruation is the most important factor affecting school dropout statistics among Ugandan girls, of whom many remain home during their menstruation.<sup>2</sup>

The menstrual cup is increasingly being considered as a possible way to improve the menstrual management of poor women and young girls in low-income countries, reflected by ongoing studies in e.g. India, Kenya and Nepal\*. The menstrual cup is a bell-shaped cup most often made of medical silicone (a few brands are made of rubber or Thermoplastic Elastomer (TPE)) and is worn inside the vagina during menstruation to collect menstrual fluid.<sup>4</sup> The menstrual cup can collect three times as much fluid as the average tampon can absorb. It can be washed and reused up to 10 years. The menstrual cup has thus the advantage of being economical, reusable, and environmentally friendly.<sup>4</sup>



Ruby Cup (menstrual cup brand)

The few studies available on use of menstrual cups from high-income settings indicate that health risks are minimal if used as directed.<sup>4-7</sup> Although there has been one reported case of a retained cup requiring medical intervention,<sup>8</sup> and suspected associations between use of cups and dislodged intrauterine devices, endometriosis and adenomyosis,<sup>9, 10</sup> documented cases are few and the associations have not been systematically evaluated. Available evidence from diaphragm trials, and a menstrual cup trial in urban and peri urban Nepal suggest limited risk of reproductive tract infections caused by use of cups in low-income settings. The Ministry of Health in Uganda is considering integrating menstrual cups in the management of obstetrical fistula and is currently (2012) piloting a study on this subject. However there are few studies on the use of menstrual cups and health risks in these settings, hence the rationale for this pilot study.



Insertion of a menstrual cup in the vagina/Ruby Cups

The first menstrual cups were patented in 1932, but production of the first commercially viable menstrual cup brand, The Keeper, started in USA in 1987, which is still manufactured today. Menstrual cups are sold for 30-40 USD in Europe and Northern America. In comparison women spent approximately 5-10 USD per month on menstrual products, i.e. 600-1200 USD in ten years. The menstrual cup MPower has been produced since 2008 in South Africa, but menstrual cups have not been produced nor been widely available in East Africa. In 2011 the social business Makit Ltd. introduced the menstrual cup brand, Ruby Cup, in Kenya, sold at appr. 8-21 USD. The study on menstrual cups from Kenya by APHRC has shown a high

\* J-PAL's *Menstrual Management and Sanitation Systems study* in Bihar, India; the African Population and Health Research Centre's *Menstruation Project* in Nairobi, Kenya; and the *Menstruation and Education in Nepal Project*.

acceptability among girls and women in Nairobi. Based on these results, it is likely that menstrual cups also could be acceptable for women in Uganda. However, as far as the authors of this report are aware, apart from the fistula study, there are no studies on use of menstrual cups in Uganda.

This pilot study is developed by WoMena Ltd and conducted in collaboration with the Uganda Red Cross Society (URCS). It is designed to fit into the Life Planning Skills (LPS) project implemented by URCS with support from Danish Red Cross Youth (DRCY).<sup>12</sup> The LPS project is based on a peer-to-peer model for youth empowerment, which aims at providing vulnerable young people with essential knowledge and skills to sustain healthy and prosperous lives. Part of the project is training of youth volunteers in facilitation of LPS sessions for groups of vulnerable youth. A LPS focal person supports and coordinates all LPS activities in the branch. Knowledge on sexual and reproductive health, including menstruation and menstrual management, is part of the LPS curriculum.

## Objectives

The specific objective of this pilot study was to assess the acceptability, suitability and hygienic safety of menstrual cups among vulnerable women and young girls in Uganda. The overall goal, which the results of this pilot study will contribute towards, is to empower girls and women in Uganda through the introduction of acceptable, suitable and safe methods for menstrual management. More specifically, the study seeks to strengthen reproductive rights and services for girls and women in Uganda by supporting the formulation and implementation of policies and programs aimed at improving menstrual management. In addition, the study aimed to provide insights into study participants' attitudes towards menstruation, their experiences of using the menstrual cup as well as to test a model for introducing menstrual cups in the framework of URCS' LPS programme, which can serve as inspiration for models to introduce menstrual cups into similar programmes.

## Methods

The study had in total 31 female participants: 23 female beneficiaries from the LPS project (who had completed all LPS sessions) and 8 URCS volunteers/staff. Participants attended a half-day training session facilitated by a member of WoMena, who was working for the LPS project at the time, on hygienic use and cleaning of the menstrual cup. The training was designed to suit the LPS curriculum on menstruation and menstrual management, and had special emphasis on the importance of sterilization of the cups in-between periods and hand hygiene when inserting and removing the cups. This was inspired by the APHRC study from



Training session on use and cleaning of menstrual cups. Photo: Bianca Luff

Kenya, where the provision of education on menstruation were considered vital for the acceptability of the menstrual cup.<sup>1</sup>

On the same day as the training, all participants signed consents of participation, and baseline data collection and distribution of menstrual cups were conducted. Participation in the study was voluntary, all data anonymized (quoted names are fictional) and permission given to publish photos in this report. The LPS focal person functioned as local contact person for study participants and WoMena in the planning and conduction of the study.

Seven semi-structured interviews and 31 structured questionnaire interviews were conducted at baseline collecting data on participants' background information, current menstrual management preferences, experiences and challenges, as well as their considerations about trying the cup. After 3-5 months, participants were asked in 21 semi-structured interviews (including seven participants interviewed twice and

seven interviewed once for a total of 15 interviewees) and 22 structured questionnaires about cultural, practical and health experiences and attitudes towards using the cup.

31 participants went for gynecological check at baseline and 18 participants at follow-up. These checks consisted of urinalysis testing for urinary tract infections and high vaginal swabs (HVS) testing for reproductive tract infections (candidiasis), sexually transmitted diseases (gonorrhoea, trichomonas) and abnormal cervix cells. Participants who had an infection at baseline before receiving a cup were treated before starting use.

## Findings and discussion

### Characteristics of study participants

Participants were between 18-32 years old with an average age of 24 years at the time of baseline data collection. About half were or had been married (48%, n=16) and most participants had one or more children (78%, n=25). The overall education level was similar to the overall education level of the Ugandan population, with many having less than secondary level (41%, n=13). Only three were currently studying, while most (84%, n=26) stated they had discontinued their studies because they could not afford school fees.

Age			Marital status			Parity			Overall education level		
18-20 years	6	17%	Never married	17	52%	No children	7	22%	Primary	13	41%
21-24 years	17	49%	Married	11	33%	One child	9	28%	Secondary	17	53%
25-32 years	12	34%	Separated/ Divorced	5	15%	Two children	10	31%	Vocational skills diploma or other	2	6%
						Three or more children	6	19%			

### Menstrual management practices and challenges

When describing how menstruation is perceived in their community participants used words such as "normal" and "a sign of fertility". Menstruation did not seem to be much of a taboo in this region, as all participants reported being able to talk about menstruation with friends or family members. Seven participants described inability to afford soap sometimes as challenging for their menstrual hygiene, i.e. for bathing and washing of clothes. In addition, six of the seven participants interviewed at baseline described menstrual pain in their lower abdomen as a challenge, while one also mentioned not being able to afford painkillers.

Participants own use of menstrual management methods at baseline were reusable cotton cloths (60%, n=18), cotton gauze (37%, n=11) and disposable pads (33%, n=10). Based on the interviews, most participants seem to use several methods depending on what they can afford at a given time. Interviewees described that those who can afford it, mostly women living in town areas, use disposable pads, while others use cotton wool, as that is cheaper than disposable pads.

However, participants noted that most girls and women in the area often cannot afford disposable pads and cotton wool, especially girls and women living in rural areas. One participant explained, how elderly women usually would teach girls how to use cotton cloth from old clothes, which they wash and reuse. Another participant using disposable pads explained that she feels more safe and comfortable with disposable pads, as they are less likely to leak than cotton wool and cloths. A participant, who uses cotton wool, as she cannot afford disposable pads, described how she would normally stay at her compound during her menstruation, as she feared embarrassment in case her flow would leak and stain her clothes.

*"Most of the young girls and women always find it so difficult to associate themselves with others when in their periods because of inadequate materials to protect them during the period."* (Diana)

### **User acceptability of menstrual cups**

At baseline almost half (48%, n=10) stated that they wanted to try the menstrual cup because of problems with currently used products. Most participants reported that they had been excited (55%, n=12) or somewhat excited but at little afraid (36%, n=8) to try the cup, while 27% (n=6) had been mostly afraid, but had been willing to try. Of the 15 participants interviewed at follow-up most (n=11) explained that they had been a bit afraid to try the cup at first, as they had feared that it would e.g. fall out (n=2) or disappear inside them (n=2). Some (n=9) had found it a bit painful and difficult to insert and take out their cup the first time. Those who feared or had difficulties using the cup in the beginning explained, that other participants had encouraged them to try and given them advice.

When asked what they did not like so much about using the cup some reasoned that it needs to be inserted in the vagina (33%, n=7), that they found it difficult to insert (24%, n=5) or take out (33%, n=7). 24% (n=5) stated there was nothing they did not like about using the menstrual cup.

Nevertheless, the overall experience of trying the menstrual cup was for all participants either *very good* (75%, n=18) or *good* (25%, n=6). All 15 interviewees at follow-up noted that they got familiar with using their cup after a few times and that it had become very comfortable to use. Similar to the APHCR study from Kenya, the acceptability of using the cup increased with increased knowledge and experience leading to more confidence and comfort when using the cup.<sup>13</sup> Similar to the experience of other studies,<sup>11</sup> for the majority of participants, who feared trying the cup in the beginning, the encouragement from trusted peers, was very important for their willingness to try their menstrual cup in the first place.

*"I had a lot of fear in the beginning, but ... I kept on using it because I could see that it was a smart and cheap solution."* (Faith)

*"In the beginning I was fearing, but my friend also told me just pick it maybe you will like it later ... My friend said I am even using it and I am so free, so I decided to use it. If not I would have been waiting. I also talked to other girls myself, who feared trying it. All I know are now using it."* (Gloria)

### **Increased physical, mental and social comfort**

When asked what they liked about using the cup most participants stated that it is better than what they used before (77%, n=17) and that it is comfortable to use (60%, n=13). All 15 follow-up interviewees described how they felt more able to do things when using menstrual cups, due to not having to change pads/cloths so often, not fearing embarrassments from leakage staining their clothes, being able to bike and walk as normal, and being able to participate at meetings and social gatherings. Generally, participants expressed that using the menstrual cup enables them to "feel free" and do what they normally do, when not having their period. Similarly, the APHRC study from Kenya found that the menstrual cup was preferred because it was a solution to problems experienced with other methods, especially leakages and skin irritations caused by sanitary pads.<sup>13</sup>

*"I feel free, unlike pads, because pads you have to check all the time, you also cannot drive your bike. Now I can drive my bike and I don't have to look back, I don't fear ... now I can stay for a long time at gatherings ... You even sleep freely, no problems with anything."* (Gloria)

*"[Using the cup] is so much more easy. When pads have been there for long, it gets too warm, and uncomfortable. It was as if I am not in my period ... [The cup] doesn't leak, it is comfortable, and I can even bike. It doesn't hurt like disposable pads, where sometimes I wouldn't feel like walking. Now I am free to do whatever I want and walk and bike as long as I want."* (Rachel)



Questions & answers session. Photo: Mai Gad

### Family and friends

All participants except one had told family members and friends that they were using a menstrual cup. 82% (n=18) responded that the reactions of their families had been positive; three described them as neutral; while only one had experienced a negative reaction. Reactions from friends were all positive except one, which had been neutral. Most (n=13) of the 15 interviewees mentioned that others were interested in trying a menstrual cup themselves and had requested where they could get/buy them. One participant even had her cup stolen by a friend whom she had told about her cup. From the stories shared by study participants, there seems to be a high demand and need for more menstrual cups, including among young girls in school.

*"It is so good to have a cup, it should be extended to younger girls in school, they also need it, you know a young girl can even get HIV-positive by looking for money to buy pads, if she prostitutes herself, it will really help our girls."* (Rachel)

One participant's partner had questioned whether the cup actually was a family planning method. This and a few other participants (n=3) mentioned in interviews questions and answers sessions that they think it would be important to include men in the sensitization sessions, as some partners had had questions or expressed interest in more information about the cups.

### **Saving time and money**

The participants spend on average about 4,000 Ugandan shillings (US\$1.6) on menstrual management per month using other methods. Most (n=13) of the 15 follow-up interviewees emphasized that when using the cup they save money on pads and soap for washing, which several mentioned their husbands also appreciated. This was also noted in the questionnaires where 36% (n=8) noted that using the cup is cheaper than what they used before and 23% (n=5) that they appreciate that they can reuse it. Participants also save time on changing and washing as the cup takes less time to clean and does not need to be changed/emptied as often as other products. 91% (n=20) would buy or ask someone to buy a cup for them if they did not already have one - and would on average be willing to pay about 5,000 shillings (US\$2). 95% (n=19) think their female friends would pay this amount for a menstrual cup, mainly because it is cheaper in the long run (62%, n=13). All participants stated that they would continue using the cup and would recommend the cup to others.

*"My husband is positive about [the menstrual cup]. He asked my how it works better, he now knows and I no longer ask for money for pads ... I used to spend 5,000 Ugandan shillings for pads, now I can spend it on something else, I am so happy for that."* (Ann)

*"Before with the pads I would get wounds between my thighs ... I had to change [pads] all the time, now the cup gives me much more time ... I encourage my friends to use it because it saves money. My husband is also happy because I am not complaining anymore."* (Grace)

### **Hygienic safety, cleaning and storage**

Four (out of 31 tested) participants had a urinary tract infection (UTI) at baseline and three (out of 18 tested) had a UTI at follow-up. No participants had a reproductive tract infection (RTI), more specifically vaginal candidiasis/yeast infection at follow-up. There were no self-reported hygienic problems at follow-up. One participant had UTI both at baseline and follow-up, while the other two participants with UTI at follow-up had no UTI at baseline.

The participant with recurring UTI (both at baseline and follow-up) reported having had her menstrual cup stolen. In addition, as the only participant, she reported inserting rolled toilet paper into her vagina as a tampon before receiving a menstrual cup as well as after her cup had been stolen. It is likely that her UTI both at baseline and at follow-up are linked to this practice.

UTIs are considered to be the most common non-intestinal infections worldwide.<sup>14</sup> The authors of this study are not aware of estimates of the general incidence of UTIs among Ugandan women over a similar period of time (5 months), which could be used for comparison. However a study from Panama estimated the

prevalence of UTIs among rural women as 21%,<sup>7</sup> while a study from urban Uganda measured a 10% UTI prevalence among women attending Mulago hospital assessment centre in Kampala.<sup>15</sup> The prevalence of UTIs among young women in Kitgum is likely to be 10-20%, translating into three - four women at baseline and two - four at follow up. Based on these estimates, it is likely that two out of the 18 participants tested at follow-up could have acquired a UTI within the 5-month follow-up period due to other causes than use of menstrual cups. Thus, this study indicates that menstrual cup use does not cause reproductive tract infections nor increases the risk of UTIs among women in this setting. As none of the participants had sexually transmitted infections, it was not possible to ascertain whether use of menstrual cups worsened existing infections.

Most participants stated that they would always (70%, n=16) or almost always (22%, n=5) wash their hands before inserting/taking out their cup, while two participants would wash their hands every once in a while. Two participants demonstrated correctly how they washed their hands before inserting and taking out their cup. Most (81%, n=18) stated they had boiled the menstrual cup after every period; two participants had boiled it after some periods, while one participant explained that she had washed her cup with soap instead of boiling it. Many participants (73%, n=16) had been asked by others, whether they would let them try their cup. All participants claimed they had not let anyone else use their cup (except one who had her cup stolen).

The most common challenge in cleaning the cup was lack of a private place to clean it (38%, n=8) and fear that others will see their menstrual flow (24%, n=5). One mentioned boiling the cup as a "minor problem", because she has to boil it in public (outside her hut). Several mentioned that they did not like boiling the cup in a pot that is used by others for e.g. cooking food and they therefore instead pour boiling water over their cup in their washing basin. One mentioned it is difficult to clean when visiting others, and she would therefore empty the cup before going somewhere without facilities to empty/clean the cup.



Questions & answers session at follow up. Photo: Mai Gad

A rat had bitten around the edge of the cup of one of the participants, when she had left it drying and had forgotten it, while another participant had also lost her cup to a rat. All other participants explained that they keep their cup in the menstrual cup bag and in a metal box, a suitcase, a drawer or the like to e.g. protect it from rats. This suggests that it may be useful to emphasize good storage practices in sensitization sessions.

Study participants did not describe shortage of water to wash hands and sterilize cups as a challenge although it might be a challenge in other low-income settings. Nevertheless, the amount of water required when using menstrual cups is minimal compared to other methods.<sup>13</sup> As good hand hygiene when inserting and removing the menstrual cup is one of the most important requirements for safe use, buying soap for hand washing might pose a challenge for some participants.<sup>13</sup> However, as stated by several participants, when using the menstrual cup, they either save money on buying pads or (in case they use cotton cloths from old clothes) need less soap for washing. In either case they save money and/or soap, which can be used for improved hand washing.

As previously noted, unsafe menstrual practices including the one practiced by the study participant that had her cup stolen have been associated with increased incidence of reproductive tract infections.<sup>3</sup> It is pertinent to note that although there is need to further establish the hygienic safety for women using menstrual cups in these settings, menstrual cup interventions, especially when supported with appropriate sensitization on hygiene, probably pose a lesser health risk than certain traditional methods. They can also provide a platform for discussion about other reproductive health and hygiene issues, as noted by the APHRC study.<sup>16</sup>

In general it can be difficult to verify answers regarding cleaning and sanitation practices, as participants probably are less likely to admit if they have not followed the cleaning instructions given at the training.



However, the test results and the descriptions of cleaning practices from the interviews indicate that they have understood and have been practicing the most important procedures related to hygienic safety when using and cleaning their menstrual cup.



Interview. Photo: Ronja Mannow Olesen

## Conclusion

The menstrual cup appears to be highly acceptable and hygienically safe to use as all participants reported the menstrual cup as comfortable to use and none experienced hygienic problems. Furthermore, all 22 participants who used the menstrual cup and participated at the follow-up data collection for this study reported improved quality of life in terms of higher social mobility, improved self-esteem, less worries and money saved not having to buy other menstrual products to be used for other important items, especially soap for improved menstrual hygiene. This pilot study seems to have reached its objectives of empowering vulnerable women and young girls through improved menstrual management.

The Life Planning Skills project of URCS with the structure of the youth groups, the task force members and the focal person has proven to be a very suitable framework for introducing menstrual cups as beneficiaries already have relevant knowledge on reproductive health, including menstruation and menstrual management to build on, while information and instructions provided at the initial training is passed on and reinforced from the strongest to the most vulnerable participants in the study, by trusted peers and URCS volunteers/staff. This model can thus serve as example and inspiration for LPS projects in other branches as well as for other similar projects.

## Recommendations

This pilot study provides information and best practices on introducing menstrual cups to other URCS branches and Uganda in general. Importantly, embedding the menstrual cup component in the LPS project structure seemed very important to build on information already provided on menstruation, to share experiences with peers and solicit support from the LPS focal point. Encouragement from trusted peers was very important for the participants' willingness to try their menstrual cup, indicating that it is an advantage to introduce the cups to groups of girls and women, who can support each other, rather than to individuals.

Similar to the APHRC study from Kenya the provision of education and open discussions about menstruation were considered vital for the acceptability of the menstrual cup. This study indicates that it is important that this is included in the information given at the beginning, as well as in follow up sessions.

The information provided in the beginning emphasizing hand washing and hygiene practices seems effective and appears to have successfully deterred study participants from sharing their cups. The curriculum can be shared with other programs.



Distribution of menstrual cups to study participants at baseline. Photo: Bianca Luff

As noted, some participants indicated that their male partners were interested in knowing more about the cup. The authors think it would be important to invite partners to sensitization sessions to allow them to ask their questions, solicit support and address misconceptions about the cup being a family planning method.

Lastly, sensitization sessions should include information on good storage practices to avoid rats and other rodents damaging the menstrual cups.

Interventions with menstrual cups have a great potential in the health and education sectors in Uganda. Going forward, further studies should be conducted in collaboration with the Ministries of Health and Education, to serve as input to the design of interventions related to reproductive health interventions and increasing school attendance for girls.

## Acknowledgements

Thanks to the many people and partners that enabled us to do this study, including: Uganda Red Cross Society and the volunteers in Kitgum, Makit Ltd for their inputs on training curriculum and for donating Ruby Cups for the study, Dr Joy Muhumuza for medical input on study design, and Bianca Luff, Mia Pallisgaard Hanse, Ronja Mannov Olesen and Katrine Hyllegaard for implementation/follow-up support and photography.

## Conflict of interest

The authors declare that they have no conflict of interest.

## References

1. APHRC. Experiences and problems with menstruation among poor women and schoolgirls in Nairobi, Kenya. Policy Brief no. 20: African Population and Health Research Center; 2010.
2. Mwesigye S. No pads, no school. *The Observer*. 2011.
3. Khanna A, Goyal RS, Bhawsar R. Menstrual Practices and Reproductive Problems - A Study of Adolescent Girls in Rajasthan. *Journal of Health Management*. 2005; **7**(1): 91-107.
4. Cheng M, Kung R, Hannah M, Wilansky D, Shime J. Menses cup evaluation study. *Fertil Steril*. 1995; **64**(3): 661-3.
5. Stewart E. *The V Book: A Doctor's Guide to Complete Vulvovaginal Health*: Bantam; 2002.
6. North BB, Oldham MJ. Preclinical, clinical, and over-the-counter postmarketing experience with a new vaginal cup: menstrual collection. *J Womens Health (Larchmt)*. 2011; **20**(2): 303-11.
7. Pena EF. Menstrual protection. Advantages of the menstrual cup. *Obstet Gynecol*. 1962; **19**: 684-7.
8. Day S. A retained menstrual cup. *Int J STD AIDS*. 2012; **23**(5): 367-8.
9. Mølgaard M. Chief physician warns: hyped menstrual cup can have an unfortunate side effect. Danish title: Overlæge advarer: Hyped menstruationskop kan have en uheldig bivirkning. 3 September 2012: <http://politiken.dk/tjek/sundhedogmotion/velvaere/ECE1741168/overlaege-advarer-hypet-menstruationskop-kan-have-en-uheldig-bivirkning/>
10. Spechler S, Nieman LK, Premkumar A, Stratton P. The Keeper, a menstrual collection device, as a potential cause of endometriosis and adenomyosis. *Gynecol Obstet Invest*. 2003; **56**(1): 35-7.
11. Oster E, Thornton R. Determinants of technology adoption: private value and peer effects in menstrual cup take-up. Working Paper 14828: National Bureau of Economic Research, Inc.; 2009.
12. URCS. Empowering youth - From hand-outs to hard work in post-conflict Northern Uganda: Uganda Red Cross Society & Danish Red Cross Youth; 2010.
13. APHRC. Attitudes towards and acceptability of, menstrual cups as a method for managing menstruation: Experiences of women and schoolgirls in Nairobi, Kenya. Policy Brief no. 21: African Population & Health Research Center; 2010.
14. August SL, De Rosa MJ. Evaluation of the prevalence of urinary tract infection in rural panamanian women. *PLoS One*. 2012; **7**(10): e47752.
15. Mwaka AD, Mayanja-Kizza H, Kigonya E, Kaddu-Mulindwa D. Bacteriuria among adult non-pregnant women attending Mulago hospital assessment centre in Uganda. *Afr Health Sci*. 2011; **11**(2): 182-9.
16. APHRC. Use of menstrual cup by adolescent girls and women: Potential benefits and key challenges. Policy Brief no 22: African Population and Health Research Center; 2010.