



EXAMINING THE ACCEPTABILITY THE COULDYOU? MENSTRUAL CUP: A CASE OF INHAMBANE AND MAPUTO PROVINCES

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Abstract

The CouldYou?Girls Health Initiative is sustainably addressing the Menstrual Health Management of rural women and girls in Africa. This initiative was extended to some Inhambane and Maputo provinces in Mozambique. Menstrual cups were distributed to three hundred and fifty-two (352) school girls. This comparative study therefore examined the acceptability based on; willingness to use, convince of use and like or dislike for the menstrual cups. A baseline survey was conducted in June 2019 and a follow up survey done in November 2019 to January 2020. Findings revealed that 309(72.2%) out of 100% of the girls who received the cups reported using them. 261(74.1%) strongly agreed the cup was convenience to use, 77(21.9%) only agreed they were convenient to use and 14(4.0%) had a

neutral stance. In Maputo and Inhambane 138(75.0%) and 148(88.1%) respectively liked the cup very well. 140(76.7%) reported they were very willing to use them. In both provinces, 60(17.3%) were willing, 7(2.0%) were neutral and 14(4.0%) were unwilling to use them. Findings reflected that the CouldYou?Cup initiative was successful. The girls had accepted the cup in spite of the few challenges some of the beneficiaries encountered.

Keywords: Menstrual cup; Acceptability; CouldYou?Cup; Intervention; Sanitary pads; Tampons

1.0 Introduction

Generally, women and girls' ability to function appropriately on activities is relatively low during menstruation. They either reluctantly attend to daily routines and other relevant activities or forgo them entirely. School girls are usually discomforted during this period. Opined by (Mason et al., 2019), menstrual health has been characterized by physical discomfort, psychological distress and low self-esteem attributable to factors as; stigmatization (Johnston-Robledo & Chrisler, 2013) and Feminine Hygiene Products (FHPs) used. Women and girls alike have over the years relied on FHPs as sanitary pads, cotton wool, tampons, and dump cloth among others during menstruation. Some of these FHPs have had negative repercussions on their health due to the chemical components. Using disposable hygiene pads has aroused safety concerns (Bae et al., 2018).

Women and girls are more likely to be exposed to particularly volatile organic compounds (VOCs) when using sanitary pads containing chloromethane, styrene and chloroform. However, few regulations demand the disclosure of constituents used in producing them (Lin et al., 2020). For instance, the external genitalia gets direct contact with sanitary pads for longer period hence the probability of considerable amount of VOCs or phthalates absorbing into the female reproductive system (Park et al., 2019). Toxic shock syndrome (TSS) and dioxins are also notable health impacts associated with some FHPs (Juma et al., 2017; Nicole, 2014). The chemical exposure due to the use of FHPs has been a major concern to feminine health advocates and in an effort to address this, menstrual cups have been invented.

The introduction of menstrual cup is to aid proper menstrual management. Unlike other FHPs, menstrual cups do not amplify infections (Howard et al., 2011; Kakani & Bhatt, 2017).

Bacterial infection rate associated with menstrual cup use is minimal or completely absent (North & Oldham, 2011; Phillips-Howard et al., 2016). This infers that menstrual cup shows no adverse effects on the vaginal flora (van Eijk et al., 2019). Also, there has been an increasing interest in the use of menstrual cups due to the desire for an environmentally friendly menstrual product (Howard et al., 2011). It has been adopted and accepted in some developed countries (Mitchell et al., 2015; North & Oldham, 2011; Stewart et al., 2010) and in some developing economies (Beksinska et al., 2015; Juma et al., 2017; Kakani & Bhatt, 2017; Phillips-Howard et al., 2016).

However, the acceptance rate has varied for diverse reasons. For the comfort it offers, its menstrual blood collection capacity (Beksinska et al., 2021) and the absence of toxic shock syndrome (Howard et al., 2011), it has been accepted by some users. On the other hand, the associated discomfort felt while using them due to leakage, constant urge to urinate and the notion that menstrual cup would stick out of the vagina (Pokhrel et al., 2021; van Eijk et al., 2019), the use of menstrual cup has been a major challenge to others. There still remain a divide on its acceptability.

Notwithstanding, the CouldYou?Girls' Health Initiative which is sustainably addressing Menstrual Health Management of rural women and girls in Africa has introduced CouldYou? Menstrual Cup to women and girls in some African countries. This is an attempt to also address the dignity and well-being of women (Phillips-Howard et al., 2016) during menstruation. Particularly, this initiative is to keep school girls comfortable, active in their daily routines and other communal activities during menstruation. Inhambane and Maputo, two provinces in Mozambique are beneficiaries to this initiative. A number of school girls were opportune to be part of this intervention. This study therefore examined the acceptability of the menstrual cup initiative in the two Provinces.

Although the menstrual cup is not a widely known substitute (van Eijk et al., 2019) to feminine hygiene products (FHPs) especially in Africa, a number of villages and cities have had access to them hence a number of studies conducted on its acceptability (Beksinska et al., 2021; Beksinska et al., 2015; Mason et al., 2019). To our best of knowledge, no study has been conducted on the two cities who have been beneficiaries to the menstrual cup intervention too. Again, the items that constitute the construct acceptability in this studies is different from that of previous studies. In this study, convenience, likeness, willingness to use are used in measuring acceptability. In an effort to contribute to menstrual cup intervention in

Africa our study compares the acceptability in Maputo and Inhambane provinces of Mozambique.

The remaining section of the study is organized as follows; section two presents the methods of the study, section three present results, four captures a cross examination and discussion of results, the fifth section presents ethical consideration and the final section draws conclusion on the study.

2.0 Methods

2.1 Study site

Maputo and Inhambane are provinces in Mozambique. Maputo province has an area of 22,693 km² and a population of 1,122,000. The capital of Maputo is Matola and located in the southern part of the country. Having the largest port in Mozambique, its economy is centered on the harbour. Menstrual products used by girls in Maputo include sanitary pads, toilet rolls, tampons and locally made cloth specifically for menstruation.

Inhambane province is located on the coastline of northern Mozambique and inhabited by 80564 people. Interestingly, the provincial capital of Inhambane is also called Inhambane. This province has one of the well-known tourist destinations of Mozambique which is called Bazaruto archipelago. Girls in this province mostly use sanitary pads, tampons, toilet rolls and traditionally made cloth for menstrual purpose for their menstruation.

2.2 Baseline Survey

A baseline survey was conducted in the two provinces in June 2019 on a sample of three hundred and fifty-two (352) school girls aged between fourteen (14) and eighteen (18). The purpose was to know how the school girls managed their menstrual health and to establish key metrics for evaluating the intervention. Among the three hundred and fifty two (352) participants, one hundred and eighty-four (184) were from Maputo province and one hundred and sixty-eight (168) from Inhambane. Beneficiaries responded to questions using the Likert scale. They answered questions on the menstrual products they were using prior to the initiative and their knowledge on menstrual cup.

2.3 Menstrual Cup Implementation

A two (2) day training was organized where the school girls were taken through training sessions on menstrual management, precisely on safe use of the cup, menstrual hygiene, and discuss issues of stigma and myths by qualified nurses. The nurses trained the beneficiaries on the training modules stated above. There were also volunteers that went through rigorous training by the nurses to enable them offer a step down training for the girls who received the cups. After this session, we distributed the menstrual cups to the girls. These girls were given the opportunity to call the volunteers for any information or assistance on the use of the cup. This enabled the volunteers record difficulties encountered by the school girls. The challenges recorded were discussed among staff of CouldYou? Beneficiaries also met periodically to share their experience on the use of the cup.

2.4 Follow-up Survey

A follow-up survey was then conducted from November 2019 to January 2020 to examine the acceptability. Our nurses and volunteers started the follow-up 15 days after the cups distribution. We started collecting data on all the girls who received the cups. The follow-up was done on the girls for three menstrual cycles. Names of the beneficiaries who received the menstrual cups were document hence making it easier for volunteers to get in touch with them. Each volunteer called the beneficiaries entrusted to them on weekly basis to enquire about their experience with the cups.

This study was conducted in Inhambane and Maputo provinces in Mozambique from November 2019 to January 2020, amounting to a study period of three (3) months on a sample size of three hundred and fifty-two (352) school girls who received the CouldYou?menstrual cups. This was a follow-up survey. One hundred and eighty-four (184) of these girls are from Maputo which constituted 52.3% and one hundred and sixty-eight (168) are from Inhambane also forming 47.7%, aged between fourteen (14) and eighteen (18) years.

The study employed primary data through a community-based participatory research (CBPR) tools to record views from the girls. The quantitative surveys were conducted using KoboCollect and data analysed using SPSS. Likert scale was employed in measuring their likeness for the cup, the convenience in use, willingness to use and to rate how novel the

product was to them. Answering some questions, the beneficiaries were granted the opportunity to choose multiple response. Significance was set at $P < 0.05$.

Following (Mason et al., 2019; van Eijk et al., 2019) this study compared the previous to the current menstrual products used by the beneficiaries. The survey revealed that the menstrual products used prior to the initiative included locally made menstrual product from cloth, sanitary pads, tampons and toilet rolls. After the initiative, another survey was conducted which again considered the menstrual products they use.

Table 1 Frequencies

Province	Participants (N) (Age 14-18years)	Percent	Cumulative Percent
Maputo	184	52.3%	52.3%
Inhambane	168	47.7%	100.0%
TOTAL	352	100%	

3.0 Results

Findings on the base-line and follow-up surveys are presented and discussed in the subsequent subsections.

3.1.1 Menstrual products use

Previously, 91(19.0%) of these girls used locally made menstrual product from cloth, however, this figure had dropped to 9(2.1%) representing about 10% decline in the use of locally fashioned cloth for menstruation. Also, the use of sanitary pads had declined from 241(50.3%) to 81(18.9%) signifying about one-third decline. Tampon users in both provinces now constituted 6(1.4%) instead of 72(15.0%), also dropping significantly. 75(15.7%) of the beneficiaries used toilet rolls previously and this figure has equally fallen to 23(5.4%). However, none of the beneficiaries had used menstrual cup. During the follow up, 309(72.2%) of the school girls in these provinces reported to use CouldYou?Cups although none had used a cup before prior to the initiative. The results is reported in table 2

Table 2 Menstrual Product

Menstrual Product	Number of persons (Percentage)					
	Panel		Maputo		Inhambane	
	Current	Previous	Current	Previous	Current	Previous
Locally fashioned menstrual product from cloth	9(2.1%)	91(19.0%)	8(4.3%)	41(23.3%)	1(0.6%)	50(30.1%)
Pad	81(18.9%)	241(50.3%)	43(23.4%)	170(96.6%)	38(22.6%)	71(42.8%)
Tampons	6(1.4%)	72(15.0%)	1(0.5%)	8(4.5%)	5(3.0%)	64(38.6%)
Menstrual Cup	309(72.2%)		151(82.1%)		158(94.0%)	
Toilet rolls	23(5.4%)	75(15.7%)	1(0.5%)	27(15.3%)	22(13.1%)	48(64.0%)

**Percentages and totals based on respondents %within Province*

3.1.2 The Perception of the CouldYou?Cups

3.1.2.1 Convenience of Use of Cups

On a three (3) point Likert scale; strongly agree, agree, neutral, with a significant relationship, (χ^2 linear trend 7.07; $p \leq 0.03$), 261(74.1%) of the student beneficiaries strongly agreed to the fact that the cups were convenient to use whereas 77(21.9%) agreed to the fact that the cups were convenient to use. 14(4.0%) of these beneficiaries were neutral.

In Maputo province the reported mean and standard deviation values were ($m=4.64$, and $s.d=0.60$). In Inhambane, the values recorded for men and standard deviation were ($m=4.77$; $sd=0.45$). Responding to the issue with convenience, 130(70.7%) constituting 49.8% of the beneficiaries strongly agreed to the fact that the cups are convenient to use. In Inhambane province, 131(78.0%) also summing up to 50.2% of the total respondents strongly agreed to same assertion. 42(22.8%) in Maputo accounting for 54.5% of the total beneficiaries agreed that the product was convenient to use whiles 20.0% in Inhambane representing 35(20.8%) of the school girls also agreed that the product was convenient to use. 12(6.5%) remained unallied on the issue of convenient in Maputo whereas 2(1.2%) in Inhambane remain neutral. The results on convenience is reported in table 3

Table 3 Convenience Crosstabulation

Scale	Panel	Maputo	Inhambane
Strongly agree	261(74.1)	130(70.7%)	131(78.0%)
Agree	77(21.9%)	42(22.8%)	35(20.8%)
Neither agree nor disagree	14(4%)	12(6.5%)	2(0.6)
T-statistics 277.66		mean=4.64	mean=4.77
Pearson Chi-square 7.07		standard deviation=0.60	standard deviation=0.45
Chi-Square 277.66	p ≤ 0.01		
Linear-by-Linear Association = 4.86	P ≤ 0.03		
Obs	352		
df	2		

**Percentages and totals based on respondents %within Province*

3.1.2.2 Like or Dislike for Cups

Again on a five (5) point Likert scale; like very well, not like at all, like slightly, like quite well and like somewhat, beneficiaries likeness for the cups were measured. With a significant relationship (χ^2 linear trend 12.92; $p \leq 0.01$), 288(81.3%) of the beneficiaries liked the cup very well, 4(1.1%) did not like it at all, 12(3.4%) slightly liked the cups, 34(9.7%) liked them quite well and 16(4.5%) somewhat liked them.

In Maputo, the mean and standard deviation values recorded for this construct were ($m=4.52$; $sd = 0.96$). That for Inhambane are ($m=4.83$; $sd=0.52$). In Maputo, 138(75.0%) constituting 48.3% liked the cup very well. 148(88.1%) constituting 51.7% of the total beneficiaries in the survey expressed much likeness for the product in Inhambane. It was recorded in Maputo that 4(100%) of the beneficiaries did not like the cup at all. However, none in Inhambane communicated any form of dislike for the product. 10(5.4%) of the respondents constituting 83.3% slightly liked the product in Maputo whereas in Inhambane, 2(1.2%) constituting 16.7% expressed that they slightly liked them. 22(12.0%) and 12(7.1%) constituting 64.7% and 35.3% in Maputo and Inhambane respectively liked the product quite well. In Maputo, 10(5.4%) making up 62.5% of the respondents expressed that they liked the product to some extent. 6(3.6) constituting 37.5% in Inhambane stated that they liked the product to some degree. Results on this construct is presented in Table 4

Table 4 Like/Dislike Crosstabulation

Scale	Panel	Maputo	Inhambane
Like very well	288(81.3%)	138(75.0%)	148(88.1%)
Not like at all	4(1.1%)	4(100%)	-
Like slightly	12(3.4%)	10(5.4%)	2(1.2%)
Like quite well	34(9.7%)	22(12.0%)	12(7.1%)
Like slightly	16(4.5%)	10(5.4%)	6(3.6)
T-statistics 277.66		mean=4.52	mean=4.83
Pearson Chi-square 12.92		standard deviation 0=.96	standard deviation=0.52
Chi-Square 832.74	p≤ 0.01		
Linear-by-Linear Association = 6.44	P≤ 0.01		
Obs 352			
df 4			

**Percentages and totals based on respondents %within Province*

3.1.2.3 Rating in terms of novelty of Cups

On a three (3) point Likert Scale, that is; extremely new and different, very new and different, somewhat new and different, beneficiaries were asked to rate the cups. With no significant relationship, (χ^2 linear trend 1.24; $p \leq 0.26$), in general, 279(79.3%) forming 79.9% of the total beneficiaries saw the product as extremely new and different, 62(17.6%) constituting 17.8% appraised the cup as very new and different whereas 8(2.3%) constituting 2.3% of the total saw this initiative as somewhat new and different.

The mean and standard deviation values for Maputo province were ($m=4.79$; $sd=0.41$) and that for Inhambane ($m=4.77$; $sd=0.45$). Responding to this construct, 142(50.9%) beneficiaries in Maputo province rated the product as extremely new and different and 137(49.1%) rated same in Inhambane. 38(61.3%) of the beneficiaries in Maputo evaluated the product as very new and different while 24(38.7%) graded this product also as very new and different in Inhambane. To 4(50.0%) each of the recipients in Maputo and Inhambane, this product was somewhat different. Results on ratings of cups novelty is reported in table 5

Table 5 Rating on novelty Crosstabulation

Scale	Panel	Maputo	Inhambane
Extremely new	279(79.3%)	142(50.9%)	137(49.1%)
Very new and different	62(17.6%)	38(61.3%)	24(38.7%)
Somewhat new and different	8(2.3%)	4(50.0%)	4(50.0%)
T-statistics 347.15		mean=4.79	mean=4.77
Pearson Chi-square 2.22		standard deviation 0=.41	standard deviation=0.45
Chi-Square 832.74	p≤0.01		
Linear-by-Linear Association = 1.24	P≤0.26		
Obs	352		
df	2		

**Percentages and totals based on respondents %within Province*

3.1.3 Willingness to use the Cups

On a four (4) point Likert Scale; very willing to use the cups, willing to use the cup, neither willing or unwilling and unwilling to use the cup, the degree to which beneficiaries were willing to use the menstrual cups was examined. These findings are reported in Table 6. With a significant relationship (χ^2 linear trend 10.64; $p \leq 0.01$), 270(76.7%) were very willing to use the CouldYou?Cups, 60(17.3%) were willing to use them, 7(2.0%) were neutral and 14(4.0%) were unwilling to use the product.

Province specific, Inhambane recorded mean and standard deviation values of ($m = 4.72$; $sd = 1.08$) and Maputo ($m = 4.85$; $sd = 0.56$). In response to this construct, 140(76.1%) and 130(77.4%) of the beneficiaries expressed much willingness to use the cups in Maputo and Inhambane respectively constituting 51.9% and 48.1% correspondingly. 38(20.7%) in Maputo stated that they were willing to use the cups constituting 62.3% of the total respondents. In Inhambane, 23(13.7%) of the respondents were also willing to use the menstrual cups which also forms 37.7% of the total respondents. However, 4(1.1%) in Maputo constituting 57.1% and 3(1.8%) in Inhambane constituting 42.9% remained neutral. 2(1.1%) from Maputo, forming 14.3% and 12(7.1%) forming 85.7% from Inhambane were unwilling to use them.

Table 6 Willingness to use Crosstabulation

Scale	Panel	Maputo	Inhambane
Very willing	270(76.7%)	140(76.1%)	130(77.4%)
Willing	60(17.3%)	38(20.7%)	23(13.7%)
Neutral	7(2.0%)	4(2.2%)	3(1.8%)
Unwilling	14(4.0%)	2(1.1%)	12(7.1%)
T-statistics 277.66		mean=4.85	mean=4.72
Pearson Chi-square 10.64		standard deviation 0=.56	standard deviation=1.08
Chi-Square 832.74	p≤ 0.01		
Linear-by-Linear Association = 3.17	P≤ 0.08		
Obs 352			
df 4			

**Percentages and totals based on respondents %within Province*

4.0 Cross Examination and Discussion

The study had revealed seen interesting turn of events. The choice of menstrual product by the school girls had changed although they continually used multiple menstrual products. It was observed that in Maputo, the decline in the use of the locally made menstrual product from cloth was about 5%. However, a much decline was observed in Inhambane. Inference drawn here is that, the beneficiaries in Inhambane were relatively reducing the use of the cloth at a faster pace. Use of tampons had also declined in both provinces but that of Inhambane was significantly lower. This can be attributed to the similarities in use with the menstrual cup. Most likely, the cup stood advantage over the tampons because tampons are not reusable. The use of toilet rolls had also fallen but that of Maputo had fallen at a much appreciable rate. Maputo was more likely choosing the cups over toilet rolls as one of their alternatives.

Although there had been a decline in both provinces regarding the use of sanitary pad, it still competed favourably with the cups. The decline in use of pads in Maputo was quite lower compared to Inhambane. The possible reason is the advantage sanitary pads seemingly possess over menstrual cups. The sanitary pads relatively grant to any beginner ease of use (Mason et al., 2015). These revelations showed that Inhambane had embraced the initiative better than the Mapotu. In all, the menstrual cup had influenced the current choice of

menstrual product in both provinces. The cup was now one of the multiple products used and this was visible in the percentage recorded in Maputo, 82.1% and in Inhambane 94%. Findings could not have agreed less with (Beksinska et al., 2015) who established that many novice users accepted the menstrual cups due to the benefits they offer.

The percentage recorded of student beneficiaries on their perception about the cups inferred deeper appreciation of the initiative. A higher percentage of the beneficiaries constituting about three-quarter of the total respondent strongly agreed that the cup accorded them convenience, consistent with (Pokhrel et al., 2021). A few were neutral on issues of convenience. This is probably because a majority of these beneficiaries do not face challenges when using the cups. The greater percentage of the beneficiaries who strongly agreed to the convenience the cup offered them are from Inhambane province.

Regarding likeness of the cup, Inhambane again ranked higher. However, the degree of likeness expressed in general in both provinces was appreciable. On the ratings of novelty of the product, it was revealed that the product was extremely new and different to most beneficiaries in Inhambane compared to Maputo. The difference in the margin here was not that much which meant both provinces barely knew the product. Although the product was extremely new to the beneficiaries in Inhambane relatively, they found it very much convenient to use. Some saw the product as somewhat different and this could probably be because they might have compared its use to tampons which equally demands insertion into the vagina.

Largely, it could be inferred that the menstrual cup had been accepted in both provinces, consistent with (Beksinska et al., 2015; Hyttel et al., 2017a). This meant the mission to help the girl child manage her menstrual health had been accomplished in these provinces.

5.0 Conclusion

This study examined the acceptability of menstrual cup in Maputo and Inhambane provinces in Mozambique after the *Couldyou?Cup CouldYou?* Initiative. This was an effort to help the girl child manage her menstrual health. A total of three hundred and fifty-two (352) girls were the beneficiaries of the initiative.

Findings revealed that Maputo had seen a decline in the use of the locally made menstrual product from cloth but a sharper decline was observed in Inhambane. The use of tampons

had also reduced in both provinces but much lower in Inhambane. The use of toilet rolls for menstruation had also dropped. Maputo was more likely choosing the cups over toilet rolls as one of their alternatives. With respect to sanitary pads, it still competed with the cups but not much patronised in Maputo compared to Inhambane. Implication of the findings is that, the introduction of menstrual cup had influenced the choice of menstrual products. The cup is now one of the multiple products used and this is visible in the percentage recorded.

On the beneficiaries perception about the cups, results meant indepth appreciation of the initiative. The majority constituting three-quarter of the total respondent strongly agreed the cup accorded them convenience with majority from Inhambane province. Regarding likeness of the cup, Inhambane again ranked higher. However, the degree of likeness expressed in general in both provinces was significant. Respondents proved that the product was extremely new and different to them. Inference drawn from their response proved that the menstrual cup has been accepted.

Based on the findings, it is recommended that this kind of initiative be extended to other provinces in developing economies that have no idea of menstrual cups and also suffer period poverty. This would be much helpful to adolescent school girls because it aids in managing their menstrual health without interfering in their daily activities, most importantly their school attendance.

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