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Original Research Article

Evaluation of the impact of the Bwiza initiative on period poverty among high school girls in Burera District, Rwanda

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ABSTRACT

Background: Period poverty remains a significant public health problem and a barrier for adolescent girls in low-income settings. Bwiza initiative was launched in 2022 to address this issue by providing menstrual health education and reusable menstrual products to high school girls in Burera, Rwanda. This study evaluated its impact on menstrual health knowledge, attitudes, practices, and school absenteeism.
Methods: A quasi-experimental cluster study design was employed, including two interventions and one non-intervention school. The same survey used in baseline assessment was administered, with slight modifications to capture additional variables related to Bwiza participation.
Results: A total of 273 female students aged 12-23 years participated. There was no statistical difference in good menstrual health knowledge between 2022 and 2025 (p=0.204), or between those who received Bwiza training and those who did not (p=0.853). Students in the non-intervention school were more likely to have good knowledge (22.1% versus 12.9%, p=0.048). Attitudes improved, with fewer girls considering themselves "unclean" or avoiding religious spaces during menstruation in 2025 than in 2022. Trained participants were less likely to feel insecure during menstruation (p=0.019). However, emotional discomfort, such as fear of odor (56.4%) remained prevalent. Use of unhygienic materials declined from 19% to 9.7%. Among those who received Bwiza products, over 70% found them comfortable, but only 55.6% reported sufficient supply. Absenteeism increased from 18.3% to 43.2%.
Conclusions: Despite improvements in attitudes and practices, persistent gaps highlight the need for comprehensive education, consistent product access, and strengthened school-based menstrual health support systems.

Keywords: Adolescent girls, Attitudes, Menstrual health knowledge, Menstrual hygiene, Period poverty, Rwanda

INTRODUCTION

Menstruation is a female physiological phenomenon.[1] In 2024, the UN Human Rights Council adopted a resolution focusing on menstrual health, gender equality, and human rights by calling upon States to ensure that women and girls, including those in vulnerable situations, have equitable access to information, products, safe and clean water, adequate facilities for effective menstrual hygiene and sanitation.[2] Lacking such basic needs can lead to period poverty.

Period poverty affects many women worldwide, leading to emotional, mental, and physical difficulties.[3] According to the United Nations Children's Fund (UNICEF) and World Health Organization (WHO), around 1 in 10 female students in sub-Saharan Africa miss or drop out of school due to a lack of sanitary pads.[2,4] Around 10-17% of females in Democratic Republic of the Congo, Kenya, Ghana, reported not using sanitary pads, and over 55% in Nigeria reportedly use unsanitary menstrual items, increasing the risk of reproductive tract infection.[5]

Studies in Rwanda found 67.4% adolescent girls had poor menstrual hygiene knowledge and 47.8% had poor practice.[6] Another study in the northern part of Rwanda found over 90% of students had poor menstrual health knowledge, with schoolgirls slightly better than schoolboys (86% versus 95%). Schoolgirls often felt insecure, scared, and worried during menstruation. About 20% of girls used cloth to manage their menstrual flow, and 22.3% reported menstrual-related school absenteeism.[7] Bwiza Initiative seeks to empower female students through education and provision of menstrual hygiene products. However, its impact has not been evaluated.

Accordingly, this study aimed to assess the change in student knowledge, attitudes, and practices on menstrual hygiene since the implementation of the Bwiza initiative in 2022 among the high school girls.

METHODS

Study design and settings

A quasi-experimental cluster study design was conducted in three high schools in the Butaro sector, northern Rwanda, where a baseline assessment was conducted in 2022. Since the baseline assessment, the Bwiza initiative was implemented in two schools providing menstrual health education and menstrual product support. This study included all three schools in the follow-up study to offer a comparison.

Sample and sampling

Female students in Senior 1-Senior 6 at the three high schools were selected using proportional sampling based on each school's enrollment. Written informed consent was obtained from students aged 18 and older; for those under 18, written consents from parents or legal guardians and the assents from students were obtained.

Data collection tools

The same survey used in the baseline assessment was repeated in this study.[7] The survey was in Kinyarwanda and had five main parts. Part A included some basic demographic information. Part B had 18 questions related to menstruation knowledge. Part C had nine 5-point Likert-like scale statements related to the beliefs of menstruation for girls. The response options included "strongly agree," "agree," "neither agree nor disagree," "disagree," and "strongly disagree." Part D contained 28 questions about the menstruation management practices of schoolgirls who have started their menstruation. Part E had 7 new questions on information about menstrual products provided by Bwiza Initiative and school absenteeism, the responses included "strongly disagree, disagree, neutral, agree and strongly agree" and a scale of 0, 1, 2, >3 days for the question on the school absenteeism. No identifiable information was collected.

Key measures

Four key measures were included in this study: 1) The change in knowledge level. The knowledge score was categorized as "good knowledge level" if the score was between 80% and 100% and "moderate to poor knowledge level" if less than 80% (7); 2) Change in % of agree/strongly agree and % of disagree/ strongly disagree about attitude towards menstrual hygiene management; 3) Change in % of menstrual hygiene practice; and 4) % who had been absent from school due to menstruation.

Data management and analysis

Descriptive analyses were used to summarize key measures and demographics. Chi-square tests were used to assess associations between the key measures and demographic variables, intervention/control groups, as well as between 2022 and 2025. All analyses were conducted using SPSS with a p value set at 0.05.

RESULTS

Socio-demographic characteristics of participants

A total of 273 high school girls participated in the study from the 3 schools, including 124 (45.4%) from intervention sites, and 149 (54.6%) from non-intervention site. The average age was 17.72 years, with 167 (61.2%) aged 12-18 years and 106 (38.8%) aged 19-23 years. Among all respondents, 258 (94.5%) had already started menstruating, and 81 (29.7%) had received Bwiza initiative training (Table 1).

Table 1: Socio-demographics.

Parameters		N (%)
Sample		273
Age (year)	Mean±SD	17.72±1.98
	12-18 years	167 (61.2)
	19-23 years	106 (38.8)
Schools	Non-implementation site	149 (54.6)
	Implementation site	124 (45.4)
Students' grades	S1	52 (19)
	S2	31 (11.4)
	S3	85 (31.1)
	S4	39 (14.3)
	S5	45 (16.5)
	S6	21 (7.7)
Girls who started menstruation		258 (94.5)
Received Bwiza initiative training	Yes	81 (29.7)
	No	192 (70.3)

Knowledge on menstrual health

The overall menstrual and reproductive health knowledge was 63.12%, with 49 (17.9%) scoring 80% or above and

224 (82.1%) below 80%. Five knowledge questions that had more than 80% respondents answered correctly were: 1) if abdominal pain is a menstrual symptom (95.6%) 2) if bleeding is a menstrual symptom (93.8%), 3) the age most girls get their menses (88.6%) 4) if weakness is a menstrual symptom (86.4%), 5) if menstruation is an illness (85%).

There were four questions where less than 40% respondents answered correctly including: 1) if girls during menstruation can experience headaches (35.2%), 2) if menstrual blood is unhygienic (30.4%), 3) the normal interval between two menstrual cycle (26.4%) and 4) if girls during menstruation can experience fever (21.6%) (Table 2).

Students aged 19-23 years were 3.07 more likely to demonstrate good knowledge compared to students aged 12-18 years (OR=3.07, 95% CI: 1.63-5.82, p<0.001). Students at non-implementation sites were 1.92 times more likely to demonstrate good knowledge compared to those at implementation sites (OR=1.92, 95% CI: 1.00-3.69, p=0.048). No statistical significance was found between knowledge level and Bwiza training enrolment (p=0.853) or from 2022 to 2025 (p=0.204) (Table 3).

Table 2: Menstrual health knowledge (with right answers).

Parameters	Total (%)
Girls during menstruation can experience abdominal pain	261 (95.6)
Girls during menstruation can experience bleeding	256 (93.8)
The age most girls get their first period	242 (88.6)
Girls during menstruation can experience weakness	236 (86.4)
Menstruation is an illness	232 (85.0)
The average duration of normal menstruation	217 (79.5)
Women who have menstruation are cursed	206 (75.5)
Girls during menstruation can experience back pain	200 (73.3)
The organ where menstrual blood comes from	169 (61.8)
Girls during menstruation can experience nausea	166 (60.8)
Menstruation is a physiological hormonal process for women	149 (54.6)
Girls during menstruation can experience wet cough	143 (52.4)
Girls during menstruation can experience sleeplessness	124 (45.4)
Girls during menstruation can experience headaches	96 (35.2)
Menstrual blood is unhygienic	83 (30.4)
The normal interval between two menstrual cycles	72 (26.4)
Girls during menstruation can experience fever	59 (21.6)
Overall knowledge score (SD)	63.12% (±17.38)
Good Knowledge level (score ≥80%)	49 (17.9)
Moderate to poor knowledge level (score <80%)	224 (82.1)

Table 3: Summary of analysis of knowledge level.

		Knowledge level		P value	OR (95% CI)
		Good (%)	**Poor (%)**		
School	Implementation sites	16 (12.9)	108 (87.1)	0.048*	1.92 (1.00-3.69)
	Non-implementation site	33 (22.1)	116 (77.9)		
Age group	12-18 years	19 (11.4)	148 (88.6)	<0.001*	3.07 (1.63-5.82)
	19-23 years	30 (28.3)	76 (71.7)		
Bwiza enrollment	Enrolled	14 (17.3)	67 (82.7)	0.853	NA
	Not enrolled	35 (18.2)	157 (81.8)		
Change in knowledge level over time	2022	22 (13.3)	143 (86.7)	0.204	NA
	2025	49 (17.9)	224 (82.1)		

*Significant at p<0.05.

Attitudes on menstrual health

The statements that most respondents strongly agreed/ agreed with were: 1) "I feel insecure during menstruation" (67% n=183) and 2) "I worry that others can smell me" (56.4% n=154). The statements with the most respondents strongly disagreed/disagreed with were: 1) "I should not take a bath or shower during menstruation" (91.6%, n=250); 2) "I stay away from other people" (85.8%, n=234), and 3) "I should not go to school" (83.2%, n=227) (Table 4).

Table 4: Menstrual health attitudes.

Parameters	(Strongly) agree (%)	(Strongly) disagree (%)
I feel insecure	183 (67)	77 (28.2)
I worry that others can smell me	154 (56.4)	107 (39.2)
I am scared	142 (52)	114 (41.7)
I feel ashamed	102 (37.3)	135 (49.4)
I stay away from church/place of worship	38 (14)	223 (81.7)
I should not go to school	34 (12.4)	227 (83.2)
I am unclean	26 (9.6)	211 (77.3)
I stay away from other people	21 (7.7)	234 (85.8)
I should not take a bath or shower	20 (7.3)	250 (91.6)

Table 5: Menstrual health attitude respondents with and without Bwiza training.

		Received Bwiza training			
		Yes (%)	**No (%)**	**P value**	**OR (95% CI)**
I feel ashamed	(Strongly) agree	31 (43.1)	71 (43)	0.997	NA
	(Strongly) disagree	41 (56.9)	94 (57)		
I feel insecure	(Strongly) agree	47 (60.3)	136 (74.7)	0.019*	0.51 (0.29-0.9)
	(Strongly) disagree	31 (39.7)	46 (25.3)		
I worry that others can smell me	(Strongly) agree	42 (53.8)	112 (61.2)	0.269	NA
	(Strongly) disagree	36 (46.2)	71 (38.8)		
I am scared	(Strongly) agree	38 (49.4)	104 (58.1)	0.196	NA
	(Strongly) disagree	39 (50.6)	75 (41.9)		
I stay away from other people	(Strongly) agree	3 (3.8)	18 10.2)	0.091	NA
	(Strongly) disagree	75 (96.2)	159 (89.8)		
I stay away from church/place of worship	(Strongly) agree	12 (14.8)	26 (14.4)	0.937	NA
	(Strongly) disagree	69 (85.2)	154 (85.6)		
I should not go to school	(Strongly) agree	8 (10.3)	26 (14.2)	0.385	NA
	(Strongly) disagree	70 (89.7)	157 (85.8)		
I should not take a bath or shower	(Strongly) agree	7 (8.6)	13 (6.9)	0.612	NA
	(Strongly) disagree	74 (91.4)	176 (93.1)		
I am unclean	(Strongly) agree	7 (9.5)	19 (11.7)	0.616	NA
	(Strongly) disagree	67 (90.5)	144 (88.3)		

*Significant at p<0.05.

Table 6: Change in menstrual health attitude from 2022 to 2025.

		2022 (%)	2025 (%)	P value	OR (95% CI)
I feel ashamed	(Strongly) agree	54 (43.5)	102 (43)	0.926	NA
	(Strongly) disagree	70 (56.5)	135 (57)		
I feel insecure	(Strongly) agree	95 (72)	183 (70.4)	0.744	NA
	(Strongly) disagree	37 (28)	77 (29.6)		
I worry that others can smell me	(Strongly) agree	84 (65.6)	154 (59)	0.208	NA
	(Strongly) disagree	44 (34.4)	107 (41)		
I am scared	(Strongly) agree	79 (59.4)	142 (55.5)	0.458	NA
	(Strongly) disagree	54 (40.6)	114 (44.5)		
I stay away from other people	(Strongly) agree	15 (11.6)	21 (8.2)	0.281	NA
	(Strongly) disagree	114 (88.4)	234 (91.8)		
I stay away from church/place of worship	(Strongly) agree	34 (25.4)	38 (14.6)	0.008*	0.501 (0.29-0.84)
	(Strongly) disagree	100 (74.6)	223 (85.4)		
I should not go to school	(Strongly) agree	17 (13)	34 (13)	0.989	NA
	(Strongly) disagree	114 (87)	227 (87)		
I should not take a bath or shower	(Strongly) agree	14 (10.5)	20 (7.4)	0.289	NA
	(Strongly) disagree	119 (89.5)	250 (92.6)		
I am unclean	(Strongly) agree	30 (23.4)	26 (11)	0.002*	2.484, 95% (CI: 1.39-4.43)
	(Strongly) disagree	98 (76.6)	211 (89)		

*Significant at p<0.05.

Two menstrual health attitude showed significant changes were: 1) Students in 2025 were 0.5 less likely to agree that they stay away from places of worship during menstruation, compared to 2022 (OR=0.501, CI 0.298-0.842 p=0.008), and 2) Students in 2025 were 2.48 times more likely to disagree that menstruation makes one unclean compared to 2022 (OR=2.484, 95% CI: 1.395-4.425, p=0.002). No statistically significant changes were observed in all other areas (all p>0.05) (Table 6).

Practices on menstrual health

The most used product in managing their menstruation was pads 89.9% (n= 232), 9.7% (n=25) respondents used cloth, and 0.4% (n=1) used newspapers. From 2022 to 2025, the use of cloth as a menstrual product decreased from 19% to 9.7%, while pad use also dropped from 91.2% to 89.9%.

Students in 2025 were 0.41 less likely to attend school for the full day during menstruation compared to students in 2022 (OR 0.41, CI: 0.20-0.84), the odds of missing school during menstruation were 3.57 times higher in 2025 than in 2022 (OR: 3.57, 95% CI: 2.17-5.88, p<0.001). Students in 2025 were 0.09 times less likely to report changing their sanitary protection during menstruation compared to students in 2022 (OR: 0.09, CI: 0.01-0.66 p=0.018). The odds of not washing genitalia with soap and water were over 3.23 higher in 2025 compared to 2022 (OR: 3.23, 95% CI: 2.09-5.00, p<0.001). Students in 2025 were 0.61 more likely to report difficulty concentrating during menstruation compared to 2022. (OR: 0.61, 95% CI: 0.4-0.95, p=0,029), missing household work were 1.53 times higher in 2025 than in 2022 (OR: 1.53, 95% CI: 0.99-2.32, p=0.05), the odds of avoiding church were 1.89 times higher in 2025 compared to 2022 (OR: 1.89, 95% CI: 1.17-3.06, p=0.009), and avoiding physical activity were 1.53 higher in 2025 students compared to 2022 (OR: 1.53, 95% CI: 1-2.34, p=0.048).

Additionally, 7.36% (n=19) reported not carrying extra protection, and privacy concerns increased (9.5% to 22.09%). Disposal methods also shifted, with more girls throwing used products in latrines (89.8% to 90.31%) and a small decrease in wash at home and reuse from 10.2% (n=14) to 7.75% (n=20). Only 81 (31.4%) reported receiving menstrual products from the Bwiza initiative (Tables 7 and 8).

Table 7: Menstrual hygiene practices.

		2022 N (%)	2025 N (%)
Sample		165	273
The most frequently used menstruation management method	Cloth	26 (19)	25 (9.7)
	Pad	125 (91.2)	232 (89.9)
	newspaper	1 (0.7)	1 (0.4)
If you are using cloth what to do after use	With soap and water	19 (95)	21 (84)
After washing the cloth as menstrual protection, how do you dry the cloth	Inside the house	1 (5.3)	1 (0.3)
	Sunlight	18 (94.7)	23 (92)
What to do with used sanitary protection	Dispose of at home garbage bin	4 (2.9)	1 (0.4)
	Throw in a latrine	123 (89.8)	233 (90.3)
	Wash at home and reuse	14 (10.2)	20 (7.8)
	Burn it	2 (1.5)	3 (1.2)
What problems when changing sanitary protection at school	Don't carry extra sanitary protection	17 (12.4)	19 (7.3)
	Don't have enough privacy	13 (9.5)	57 (22.1)
	Don't know where to dispose of sanitary protection	1 (0.7)	3 (1.2)
Missed school days due to menstruation	1 day	11 (8.1)	61 (23.6)
	2 days	7 (5.1)	34 (13.2)
	3 days	3 (2.2)	13 (5)
	4 days	1 (0.7)	3 (1.2)
	7 days	3 (2.2)	2 (0.8)
Reasons of missing school	Bad physical feelings	19 (76)	81 (68.1)
	Fear of leaking	6 (24)	6 (5.04)
Have you received any menstrual products from the Bwiza initiative	Yes		81 (31.4)
	No		177 (68.6)

Table 8: Menstrual hygiene practices.

		2022 N (%)	2025 N (%)	P value	OR (95% CI)
Sample		165	273	NA	NA
Ability to go to school for the full day with the method used during menstruation	Yes	126 (92.6)	216 (83.7)	0.013*	0.41 (0.20-0.84)
	No	10 (7.4)	42 (16.3)		
Change of sanitary protection	Yes	136 (99.3)	238 (92.2)	0.003*	0.09 (0.01-0.66)
	No	1 (0.7)	20 (7.8)		
Missed school due to menstruation	Yes	25 (18.3)	115 (44.6)	<0.001*	3.57 (2.17-5.88)
	No	111 (81.6)	143 (55.4)		
Bath more during menstruation	Yes	124 (95.4)	238 (92.2)	0.243	NA
	No	6 (4.6)	20 (7.8)		
Wash your genitalia with soap and water during menstruation	Yes	77 (58.8)	79 (30.6)	<0.001*	3.23 (2.09-5.00)
	No	54 (41.2)	179 (69.4)		
Experienced any itching or burning in the pelvic area during menstruation	Yes	94 (72.3)	174 (67.4)	0.328	NA
	No	36 (27.7)	84 (32.6)		
Had any yellow/green discharge from your vagina	Yes	9 (6.9)	12 (4.7)	0.351	NA
	No	121 (93.1)	246 (95.3)		
Had bad odor during menstruation	Yes	51 (38.9)	110 (42.6)	0.483	NA
	No	80 (61.1)	148 (57.4)		
Avoided standing during menstruation	Yes	46 (35.1)	81 (31.4)	0.460	NA
	No	85 (64.9)	177 (68.6)		
Used any medication for menstrual problems	Yes	7 (5.4)	21 (8.1)	0.322	NA
	No	123 (94.6)	237 (91.9)		
Found it difficult to concentrate at school during your menstruation	Yes	41 (31.5)	111 (43)	0.029*	0.610 (0.39-0.95)
	No	89 (68.5)	147 (57)		
Menstruation ever causes you Not to do your homework	Yes	23 (17.7)	87 (33.7)	<0.001*	2.36 (1.40-3.97)
	No	107 (82.3)	171 (66.3)		
Miss work around the house	Yes	64 (48.9)	153 (66.3)	0.05*	1.53 (0.99-2.32)
	No	67 (51.1)	105 (40.7)		
Be unable to play with other children	Yes	67 (51.1)	147 (57)	0.275	NA
	No	64 (48.9)	111 (43)		
Not going to church or place of worship	Yes	30 (22.9)	93 (36)	0.008*	1.89 (1.17-3.06)
	No	101 (77.1)	165 (64)		
Avoid physical sports/exercise	Yes	67 (51.1)	159 (61.6)	0.048*	1.53 (1-2.34)
	No	64 (48.9)	99 (38.4)		
Stay indoors	Yes	7 (5.3)	15 (5.8)	0.84	NA
	No	125 (94.7)	243 (94.2)		
Avoid being around males	Yes	62 (47.7)	116 (45)	0.61	NA
	No	68 (52.3)	142 (55)		
Be teased by males	Yes	23 (17.6)	36 (14)	0.35	NA
	No	108 (82.4)	222 (86)		

*Significant at p<0.05.

Table 9: Menstrual product received from Bwiza initiative.

	Strongly agree/agree (%)	Strongly disagree/disagree (%)
Satisfied with Bwiza Initiative products	58 (71.6)	20 (24.6)
Comfortable with the product	59 (72.8)	17 (20.9)
The product is easy to clean	58 (71.6)	21 (25.9)
The product is easy to store	63 (77.8)	15 (18.5)
The product is enough	45 (55.6)	29 (35.8)
		N (%)
Absent from school due to menstruation since Bwiza	Did not miss school	46 (56.8)
	Missed school	35 (43.2)

Out of the 81 students who were part of the Bwiza initiative 71.6% (n=58) strongly agreed/agreed to be satisfied with the product, 72.8% (n=59) found the product comfortable, easy to clean 71.6% (n=58), and easy to store 77.8% (n=63) with the Bwiza Initiative menstrual products. However, only 55.6% (n=45) felt the products provided were sufficient (Table 9).

DISCUSSION

The evaluation showed limited impact of the Bwiza Initiative on menstrual health knowledge. The knowledge level did not change significantly from 2022 to 2025. Similarly, no knowledge difference was found between students who participated in Bwiza training and those who did not. However, a higher proportion of girls in the non-implementation school (22.1%) had good knowledge than in the implementation schools (12.9%), with p=0.048.

The results suggested that content and delivery should be more tailored.[8] Menstrual health education that uses format that younger students can absorb or understand could be more effective in teaching key biological and physiological aspects of menstruation. Such as storytelling and animations.[9,10]

Utilizing teachers or peer educators, and parental involvement could enhance knowledge retention and effectiveness, as suggested by existing evidence.[11-13] Additionally, club activities, interactive education sessions for girls and boys, could help reduce stigma and promote a supportive school culture.[11] The Bwiza intervention was conducted a single time and not revisited, leaving schools to continue the program independently. This approach had limited success. Incorporating regular refresher sessions help students remember what they have learned and apply the skills.[12]

Attitudes shifted more than knowledge but remained fragile. Fewer girls described themselves as unclean or reported social withdrawal during menstruation, indicating some success in disrupting taboos and fostering more accepted attitudes toward menstruation. However, emotional discomfort around menstruation persisted, feeling insecure and fearing that they could be smelled by others being commonly reported. This indicated a broader school climate that needed to be adequately addressed.[14,15] Programs that empowered girls as leaders to break the silence had shown effectiveness in shifting harmful menstrual attitudes.[16]

The results showed a 9.3% reduction in the use of cloth from 2022 to 2025. Among the students who received menstrual products from the Bwiza initiative, they expressed that the pads were comfortable, easy to clean, and easy to store. However, a common complaint was the insufficient supply, and none of the girls were able to sew replacements, curbing sustainability. School environments also fell short. In 2025, 22.1% cited lack of privacy to change at school, up from 9.5% in 2022. These trends point to gaps in facilities and follow-up support. Programs succeed when they pair products with an enabling environment that includes clean water, safe sanitation, privacy, and ongoing engagement.[17] Local production and distribution models, such as sustainable health enterprise (SHE) community-based pad enterprises, could stabilize supply and create ownership.[18]

Waste management remains a neglected area. About 90% of girls disposed of products in pit latrines, a practice seen across sub-Saharan Africa that is shaped by fears of witchcraft and concerns about secrecy.[19] This has environmental and sanitation implications given the non-biodegradable content of many pads. Practical education on washing and sun-drying reusable pads, odor control, and culturally sensitive strategies for open drying, alongside investment in school waste systems, are needed to protect both dignity and the environment.

One major impact of period poverty is school absenteeism. Menstruation-related absenteeism increased from 18.3% in 2022 to 43.8% in 2025, and the ability to stay a full day in school during menses fell from 92.6% to 83.7%. About half of the girls missed school 1-3 times per month. Beyond products and pain, girls reported reduced concentration (p=0.029), missed chores (p=0.050), avoidance of religious activities (p=0.008), and limits on physical activity (p=0.048), mirroring evidence that stigma, fear of leakage and odor, and inadequate facilities drive disengagement and absence.[13,20,21] These findings all highlighted the importance of comprehensive, school-wide action rather than narrow, one-off sessions.

Several implementation and methodological challenges limited the validity of this evaluation. One major challenge was the inconsistent delivery of interventions across the participating schools, where the nature and intensity of the Bwiza Initiative appeared to vary. Additionally, there was no standardized tracking mechanism to monitor which students had fully participated in training sessions, received menstrual products, or continued producing reusable pads, making it difficult to verify individual exposure levels and directly attribute observed outcomes to the intervention. Methodologically, the baseline and post-intervention assessments involved entirely different cohorts of students because many beneficiaries of the initiative had graduated and left the schools by the time of follow-up data collection. The inability to track the same participants longitudinally introduced potential confounding variables, reduced comparability across time points, and limited the study's ability to assess individual-level changes resulting from the intervention.

CONCLUSION

In order to enhance the Bwiza initiative's long-term impact and sustainability, formally integrating menstrual education into the school curriculum would enhance consistent, standardized delivery, thereby mitigating the effects of teacher turnover or project funding cycles.

Adopting age-tailored curriculum to address physiology and cycle literacy, using interactive methods and peer leadership, and embed regular refreshers with parent and teacher involvement. Reliable product supply could be enhanced through local production or partnerships. Providing the environment with improved privacy, stable water supply and eco-friendly disposal is recommended. More community effort to foster peer support and normalize menstruation is needed. Beyond the Bwiza Initiative, this study contributes to the growing evidence on school-based menstrual health interventions in low-resource settings by demonstrating that successful programming requires a holistic approach that combines education, commodities, infrastructure, and community engagement, thereby reinforcing the need for integrated and systems-based responses to menstrual health challenges among adolescent girls.

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