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Nexus between Menstrual Hygiene Management Facilities and Primary School Girls' Class Attendance in Uganda

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Abstract: Inadequate Water, Sanitation and Hygiene (WASH) facilities has remained a daunting reality in majority of schools in low-income countries. In this study, the authors examined the availability of physical facilities for menstrual hygiene management, class attendance of girls from P.4 to P.7 and the relationship between the physical menstrual hygiene management facilities and class attendance of girls in primary schools. The paper was constructed from secondary datasets from the Eighth Uwezo Learning Assessment. A total of 954 schools were enlisted for the study. Data analysis involved descriptive statistics and spearman rank correlation. Based on the findings, the study argues that promotion of girl child education through provision of WASH facilities unveiled both challenges and successful stories. While private rooms and functional hand washing facilities were limited in numbers, and in some cases not available at all, separate latrine stances were largely available. There were remarkable differences in the average girls' attendance across regions and classes. Due to diverse relationships between menstrual hygiene facilities and class attendance, the study concludes that enhanced WASH facilities promote girls' attendance while inadequate facilities hinder the attendance. The study recommends that the Ministry of Education and Sports should prioritize provision of adequate WASH facilities in primary schools. In addition, the government should ensure that interventions from development and/or education partners maximize the provision of quality WASH facilities for enhanced girls' school attendance.

Keywords: Water; sanitation and hygiene; Uwezo; menstrual health; class attendance; Uganda.

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Introduction

Menstruation is a universal topic and the challenges young girls face in managing their menses may be comparable, although the magnitude tends to either be moderated or escalated by different contextual factors, including but not limited to socio-economic status (Rossouw & Ross, 2021), religion, culture, political systems, socialization, 'disability, among

many others. Biologically, the start of menstruation signals the beginning of the reproductive cycle in adolescent girls (Winkler,2020). This phase of life should ideally be celebrated because it signifies life itself. This however, is not always the case due to challenges faced by young girls in the proper management of their menses, especially girls in resource constrained and other emergency contexts (Sommer et.al, 2015; Hennegan, 2017). Research shows that in Low- and Middle-Income Countries (LMIC), girls often face more challenges related to Menstrual Hygiene Management (MHM), which can undermine their class attendance cum academic performance (Dreibelbis, et al, 2013).

The Joint Monitoring Program (JMP) for drinking water, sanitation and hygiene held in 2012, agreed to a common understanding of MHM as;

> Women and adolescent girls are using a clean menstrual management material to absorb or collect menstrual blood, that can be changed in privacy as often as necessary for the duration of a menstrual period, using soap and water for washing the body as required, and having access to safe and convenient facilities to dispose of used menstrual management materials. They understand the basic facts linked to the menstrual cycle and how to manage it with dignity and without discomfort or fear (UNICEF, 2019, p.8).

A number of studies attest to the fact that menstruation (menarche) remains an issue of priority because of its intricate linkage to girls' learning outcomes, especially in LMIC (Sommer et al., 2016; Hennegan et al., 2019; Sommer et al., 2021). Undermining girls' education and educational outcomes is projected to have a ripple effect on the achievement of a number of the Sustainable Development Goals (SDGs), such as Good Health and Well-Being (SDG3), Inclusive and Equitable Quality Education (SDG4), Gender Equality and Women's Empowerment (SDG 5), 'Clean Water and Sanitation (SDG 6) and Economic Growth, Productive Employment and Decent Work For All (SDG 8) (Ssewanyana & Bitanihirwa, 2019).

This study draws on the WASH systems' framework to establish the school-based physical facilities that either facilitate or inhibit the Menstrual Hygiene Management (MHM) and ultimately impact on girls' school attendance (Tellier & Hyttel, 2017). WASH is defined as a combination of three separate, albeit related sub-sectors: Water, Sanitation and Hygiene. The combination of these elements explains the WASH 'system' perspective which has been defined as "all the social, technical, institutional, environmental and financial factors, actors, motivations and interactions that influence WASH service delivery in a given context" (Gensch & Tillett, 2019, p.4).

At institutional level, the WASH system can be viewed as an integrated approach by actors responsible for offering the WASH services in that locale, for example, national level (legislation, policy and regulation); the service authority (often Local Government in the case of Uganda) and the service provider (those responsible for ensuring that WASH facilities are in place and manage to the expectations of the clients) (Lockwood & Smits, 2011), in this case, the Head teachers and School Committee. As argued by Hennegan (2020), "Hygiening menstrual practices and positive experiences of menstruation are dependent on the physical and social environment" (p.639), thus, implicating the significance of menstrual hygiene management facilities in schools.

Relatedly, World Bank Group (2022) contended that MHM is closely related to WASH facilities and this directly impacts on the general well-being and empowerment of women and adolescent girls. The study further argues that poor menstrual health and hygiene not only exacerbates social and economic inequalities but also negatively impacts girls' education, health, safety and human development. Whether at individual, household or school levels, factors that facilitate or inhibit proper MHM have been well documented and these include, among others, water and sanitation facilities, availability of water and soap, access to clean and absorbent menstrual materials, privacy and disposal facilities for used menstrual materials (Dreibelbis et al. 2013; Sommer & Sahin, 2013; Sommer et al. 2015). Given the crucial role of proper MHM in ensuring the overall well-being and educational attainment of girls, this study sought to establish the relationship between school –level menstrual health facilities and girls' class attendance. The facilities of interest were the presence of a private room, usable separate latrine stances, functional hand washing facilities and presence of both water and soap at the hand washing facilities to promote MHM.

Research findings (Sommer, 2010; Sommer & Ackatia-Armah, 2012; Sommer & Sahin, 2013;

Sommer et al, 2016) have shown that menstruating school girls in Low and Middle-Income Countries (LMIC) face numerous challenges in managing their menses in schools, let alone in other contexts. Such challenges emanate from lack of or inadequacy of WASH facilities, such as clean water within the vicinity of the toilets/latrines to provide privacy for washing hands and menstrual stains, waste disposal facilities for used sanitary materials and private area/room for washing or changing menstrual materials. This in turn suggests that availability of WASH facilities could be a major predictor of girls' ability to manage menstruation and hence their responsiveness and stability in schools during menstruation. In a study carried out in Uganda, Sommer et al. (2016) found out that inadequate sanitation facilities in schools contributed to girls' absenteeism. Sommer's earlier study, which explored the structural factors influencing menstruating school girls' health and well-being in Tanzania found out that although many of schools had pit latrines, "the number, quality and/or appropriateness of the facilities was often a problem" (p.330). In reference to the toilets, a participant in the same study reported "…Also, the toilets near the classrooms are bad; the doors are not strong, they can't have privacy-they are in a bad condition. The whole environment is bad for girls who are menstruating" (p.331). In a follow up comparative study that brought in three other countries (Ghana, Cambodia and Ethiopia) in addition to Tanzania, inadequate and/or poor sanitation facilities emerged as a hindrance to "successful menstrual hygiene in the school environment" (Sommer et. al, p. 601).

In the last one and a half decades, numerous development agencies, NGOs and national governments have shown increased interest in "the needs of menstruating girls in low-income countries and the challenges schoolgirls may face in managing menses in girl-unfriendly school environments" (Sommer et al. 2015, p. 590). A number of studies conducted in low-income countries have shown that poor menstrual hygiene practices can significantly impact girls' education through absenteeism (UNESCO, 2014; Phillips-Howard et al., 2016; Miiro et al. 2018; Farjana, 2021). A study measuring the prevalence and impact of poor MHM revealed that 54.51% of female students had been absent for an average of two days during their last period" (Hennegan & Montgomery, cited in Ombogo et al, 2023, p.60). The same sentiments were expressed in 2019 by Kenya's Ministry of Education, which reported that "thousands of Kenyan school girls [at least] miss one and a half school months of class each year due to their menstrual cycle" (Ombogo et al, 2023, p.60). Despite the growing attention given to MHM, there is still lack of clarity on the influence of the individual physical WASH facilities on girls' school attendance. This paper attempted to fill this gap.

Studies that examined the relationship between MHM provisions cum facilities and girls' school attendance in low- and middle-income countries (LMICs) support the close association between WASH facilities and girls' school attendance. The findings indicate that where girls have received menstrual hygiene support, including access to sanitary materials, hygiene education, and improved sanitation facilities, there has been a significant reduction in school absenteeism (Scott et al. 2018; Montgomery et al. 2018). As observed by Chinyama et al. (2019), proper menstrual hygiene management requires availability of and access to clean and absorbent menstrual materials, privacy, water and soap and disposal facilities for used menstrual materials. Despite this known fact, most schools in LMIC, especially in rural areas, still have inadequate facilities for MHM. In Uganda, for example, a study completed in Kamuli District indicated that the practices of 90.5% of girls in the secondary schools were below the minimum criteria for adequate MHM (Hennegan et al. 2016). Using secondary data sources for intra-country comparison, this study sought to uncover empirical evidence that sheds light on whether improved menstrual hygiene management facilities in primary schools are associated with higher rates of girls' class attendance. Understanding which of the facilities is likely to have a higher influence on girls' class attendance is important for policy interventions and practice at both national and individual school levels.

Methodology

This section presents the study settings, design, population and sampling, sources of data, validity and reliability, statistical treatment of data and ethical considerations.

Study Settings

Uganda is a landlocked country located in East Africa. It is bordered by Kenya on the East, Sudan on the North, the Democratic Republic of the Congo on the West, Rwanda on the Southwest and Tanzania

on the South (The New World Encyclopedia, 2013). Uganda's total area is 241,555 square kilometres (sq. kms), of which 45,318 sq. kms are open water and wetlands while the land area is 196,237 sq. km. The country has a latitude of 1.3733° N, and a longitude of 32.2903° E. Uganda's current population is 45.9 million persons (Uganda Bureau of Statistics, 2024).

Design

This study used the correlational research design to examine the relationships between facilities for menstrual hygiene management and girl's class attendance.

Population and Sampling

The secondary data used for analysis in this study was obtained from the datasets of the eighth Uwezo assessment, which was conducted between 2018 and 2019. By the time of conducting the assessment, Uwezo, a Kiswahili word for ''capability" was a program of Twaweza East Africa. Since 2009, Uwezo has been conducting citizen-led assessments that evaluate children's learning skills in literacy and numeracy. The 2018 assessment incorporated a range of Sustainable Development Goal (SDG) indicators; among them were water and sanitation. The primary research was carried out in thirty (30) Enumeration Areas (EAs) selected from 32 districts out of the then 128 districts in Uganda. One primary school, irrespective of ownership, was selected from each of the thirty (30) Enumeration Areas (EA) for the school survey. The selected school had to be one attended by the largest number of children residing in the Enumeration Area. Using this criterion, data was collected from a total of 954 schools. The highest number of schools assessed were in the Eastern region, which by then had 270 schools. The Central region had 210 schools, the Western region had 208 schools and the North Eastern region had 29 schools. Data on water and sanitation facilities for menstrual management was collected from the school head teachers, and corroborated by on spot checks while data on class attendance was collected using a one day's head count of female pupils who were present on the day the research assistants visited the selected schools (Uwezo, 2019). This study therefore, utilized the data sets obtained from this from the Uwezo data base repository.

Instruments

This study used secondary data from the Eighth Uwezo Learning Assessment. The assessment was carried out through a structured survey tool. Specific datasets from which this paper was constructed were derived from items that measured availability of physical facilities for menstrual management and these questions were coded in the survey tool as S600 (S603, S1100, S1102, S1103, S1107 and S1108). The code for class attendance was S100 (S1001).

Validity and Reliability

The secondary data used for this study comes from Uwezo, which has since 2009 consistently conducted large-scale citizen-led assessments in East Africa. Using the Uwezo survey tool for 2018, which was the eighth survey in a series, content validity was used to identify the questions that adequately represented the full range of the constructs being measured in this study. In addition, the selection of relevant questions were sent for verification to experts in Uwezo to confirm whether the selected questions were appropriately designed to measure what the authors intended to measure. The use of the two approaches thus guaranteed validity and reliability of the secondary datasets used for this study.

Statistical Treatment of Data

Data analysis was done using descriptive statistics and spearman rank correlation. Descriptive statistics involved frequencies and percentages. Possible correlations would be either positive or negative and its interpretation was as follows: ≥ .70= strong relationship; ≥ .50 = moderate relationship and ≤.50= weak relationship.

Ethical Considerations

The authors used secondary datasets obtained from Uwezo open source data base, (https: www.twaweza.org/go/uwezo-learning-assessment-survey tool-2018) to explore the topic of menstrual hygiene management facilities and girls' class attendance in primary schools. All data handling and storage were conducted in accordance with Uwezo's and Uganda's data protection policies. The authors ensured that the data was anonymized and no set of data was used in a way that is identifiable with specific individuals. In addition, the authors have duly acknowledged Uwezo as the original source of the data used in this study.

Results and Discussion

This section present findings through specific research questions and hypothesis that guided the study.

Research Question1: Are physical facilities for menstrual hygiene available in primary schools?

The facilities for menstrual hygiene were described using four indicators; presence of a private room for girls in their menses, presence of usable latrine stances for girls, presence of a functional hand washing facilities at school and presence of both water and soap at the hand washing facilities. Results on whether these facilities were available or not appear in Table 1.

From Table 1, slightly less than half of the schools (48.7%) had private rooms for girls, with the Central and North Eastern regions having slightly more than half of the schools (51.7% and 53.6% respectively) having private rooms for girls. The majority of the schools (51.3%) did not have private rooms for girls, with West Nile (54.7%) and Western (56.6%) regions having more than half of the schools lacking the facility.

Data on availability of separate latrine stances for girls, showed greater proportions (96.1) of the schools across all the regions had separate latrine stances for girls. Some 36 schools (3.9%) however, did not have separate latrines stances for girls, implying that girls in these schools could be sharing latrines with boys, which could impact on their consistency in attending school, especially during their menses.

Four regions (West Nile, Northern, Eastern and Central) showed similar variations with regard to data on the presence a functional hand washing facilities at schools. Overall, slightly more than half of the schools across all the regions (51.5%) had hand washing facilities. It is however, worth noting that a substantive number of schools (48.5%) did not have hand washing facilities, with schools in the Western (58.4%) and North Eastern (67.9%) regions contributing the highest percentage of schools that did not have hand washing facilities.

Table 1: Available facilities for MHM in primary schools

	West Nile	Northern	Eastern	Central	Western	North Eastern	Total
Presence of a private room for girls in their menses							
Yes	67 (45.3)	35 (41.7)	144 (45.1)	106 (51.7)	89 (43.4)	15 (53.6)	456 (48.7)
No	81 (54.7)	49 (48.3)	122 (45.9)	99 (48.3)	116 (56.6)	13 (46.4)	480 (51.3)
Presence of usable separate latrine stances for girls							
Yes	143 (97.3)	81 (95.3)	257 (97.0)	196 (96.6)	195 (95.6)	24 (85.7)	896 (96.1)
No	4 (2.7)	4 (4.7)	8 (3.0)	7 (3.4)	9 (4.4)	4 (14.3)	36 (3.9)
Presence of a functional hand washing facility at school							
Yes	85 (57.8)	45 (54.2)	142 (53.6)	113 (55.4)	84 (41.6)	9 (32.1)	478 (51.5)
No	62 (42.2)	38 (45.8)	123 (46.4)	91 (44.6)	118 (58.4)	19 (67.9)	451 (48.5)
Both water and soap currently available at hand washing facility							
Water and Soap	42 (38.9)	21 (36.8)	56 (30.4)	52 (36.4)	54 (45.0)	2 (18.2)	227 (36.4)
Water only	37 (34.3)	21 (36.8)	77 (41.8)	57 (39.9)	25 (20.8)	6 (54.5)	223 (35.8)
Soap only	1 (0.9)	0 (0.0)	1 (0.5)	5 (3.5)	3 (2.5)	0 (0.0)	10 (1.6)
Neither	28 (25.9)	15 (26.3)	50 (27.2)	29 (20.3)	38 (31.7)	3 (27.3)	163 (26.2)

Values in parenthesis are percentages

The availability of water and soap near the hand washing facilities revealed similar findings across all the regions. The results indicate close to equal proportions of schools (36.4% and 35.8%) had water and soap and water only, respectively. Slightly more than a quarter of the schools (26.2%) had neither of the two items near the hand washing facilities, with the majority of schools (31.7%) being in the Western region.

Results of the analysis largely concurred with findings of earlier studies cited in this paper, which contended that low and middle level income countries have similar barriers of adequacy of physical facilities in schools for managing menstruation (Sommer et al. 2010; Sommer & Ackatia-Armah, 2012; Sommer & Sahin, 2013; Sommer et al. 2016). Among the four physical facilities the paper focused on, the data in all regions of the country showed marked consistent improvement in the provision of usable separate latrine stances for girls in schools.

Research Question 2: What is the class attendance of girls in primary schools from P.4 to P.7?

Class attendance for girls in each class from Primary Four to Primary Seven was categorized in two levels defined as low attendance if the number of girls present in school were 50 or less; and high attendance if number of girls' present was greater than 50. Figure 1 illustrates the average class attendance in each of the class per region.

As evidenced from Figure 1, the Northern region reported the highest average attendance for girls in P.4 (48.5%) and P.5 (45.2%) while the Eastern Region reported the highest average class attendance of girls in P.6 (34.1%) and P.7 (21.5%) respectively. On the other hand, the region that reported the lowest average attendance for girls in all four classes was the North Eastern Region. Comparisons between regions therefore, showed remarkable differences in the average attendance of girls across all the four classes.

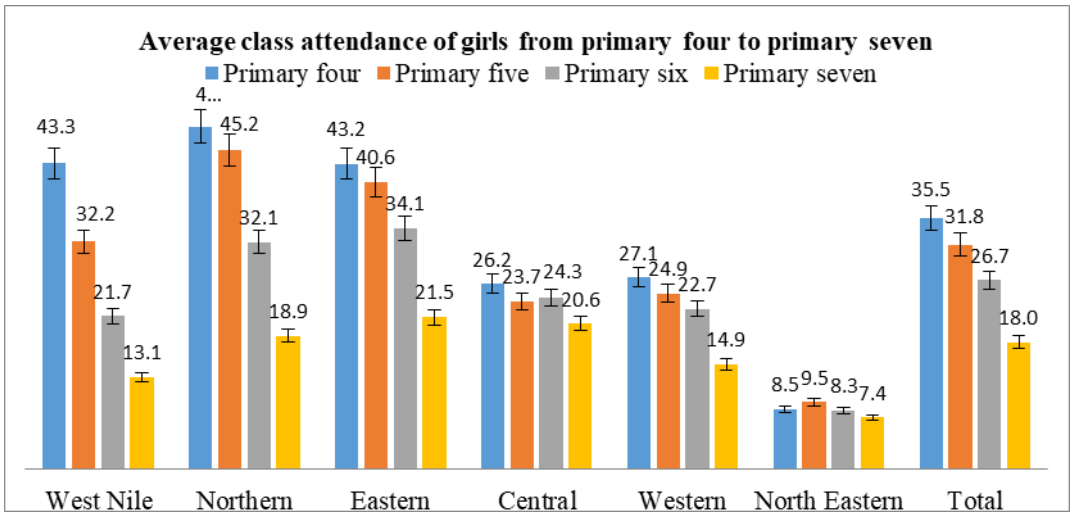

Figure1: Average class attendance of girls from primary four to primary seven

Table 2: Relationship between physical facilities for MHM and class attendance

Menstrual hygiene provisions	**Class attendance**				
	Primary four	Primary five	Primary six	Primary seven	total Attendance
	r, (p-value)	r, (p-value)	r, (p-value)	r, (p-value)	r, (p-value)
Presence of private room for girls	0.113** (0.001)	-0.129*** (0.000)	-0.175*** (0.000)	-0.216*** (0.000)	-0.164*** (0.000)
Number of usable separate toilet stances for girls	0.408*** (0.000)	0.420*** (0.000)	0.406*** (0.000)	0.275*** (0.000)	0.432*** (0.000)
Presence of functional hand washing facility	-0.082* (0.013)	-0.104** (0.002)	-0.093** (0.005)	-0.146*** (0.000)	-0.013** (0.002)
Both water and soap available at hand washing facility	-0.029^{ns} (0.476)	-0.043^{ns} (0.288)	-0.014^{ns} (0.737)	-0.071^{ns} (0.084)	-0.031^{ns} (0.447)

****p<0.001, **p<0.01, *p<0.05, ns-not significant*

Although the Uwezo (2018) survey did not establish reasons why some of the girls were absent from school on the day of the head count, the absence from school on that day lends credence to the probability that some of the girls missed school due to being in their menses. It should also be noted that absenteeism for whatever reason, including leaving school early, participation in class and concentration are all important primary ingredients for an individual's educational outcome (Stoilova et al. 2022).

Hypothesis (H0): There is no significant relationship between menstrual hygiene management provision and class attendance of girls from P.4 to P.7.

Menstrual Hygiene Management facilities and class attendance

In Table 2, to test the relationship between menstrual hygiene management provision and class attendance of girls, a spearman rank correlation test was carried out with measures for attendance in each class as well as total attendance from primary four to primary seven.

The results in Table 2 reveals diverse relationships between menstrual hygiene management (MHM) facilities and class attendance among girls across the four primary clases (P4 to P7) and total attendance. The presence of private rooms for girls shows a mixed relationship. In P4, there is a weak, positive, and significant correlation ($r=0.113$, $p<0.01$), suggesting that private rooms may support attendance among younger girls. However, in P5 ($r=-0.129$, $p<0.001$), P6 ($r=-0.175$, $p<0.001$) and P7 ($r=-0.216$, $p<0.001$), the relationship is weak and negative. This trend indicates that lack of private rooms is detrimental to class attendance as girls' progress to higher grades, possibly due to more significant challenges associated with menstruation.

The number of usable separate toilet stances for girls is consistently and moderately associated with improved attendance across all the four classes. The correlations are weak and positive (P4: $r=0.408$, $p<0.001$; P5: $r=0.420$, $p<0.001$; P6: $r=0.406$, $p<0.001$; P7: $r=0.275$, $p<0.001$). Total attendance also reflects a similar positive trend ($r=0.432$, $p<0.001$). These findings suggest that sufficient and functional separate toilets for girls are critical for promoting attendance. Toilets provide essential privacy and convenience, likely contributing to a more comfortable and supportive school environment for girls.

The presence of functional handwashing facilities demonstrates negative relationships with attendance in all the four classes (P4: $r=-0.082$, $p<0.05$; P5: $r=-0.104$, $p<0.01$; P6: $r=-0.093$, $p<0.01$; P7: $r=-0.146$, $p<0.001$). This result is unexpected and may indicate a possibility of the effect of some moderating factors outside the scope of this study. Furthermore, the availability of both water and soap at handwashing facilities shows no significant relationship with attendance across all grades and total attendance, suggesting that these provisions alone may not directly impact girls' attendance. Broader barriers, such as cultural perceptions and inadequate menstrual hygiene products might limit their effectiveness.

Conclusions and Recommendations

Based on the findings, the study argues that promotion of girl child education through provision of WASH facilities unveiled both challenges and successful stories. While private rooms and functional hand washing facilities were limited in numbers, and in some cases not available at all, separate latrine stances were largely available. There were remarkable differences in the average girls' attendance across regions and classes, making class attendance a critical school challenge. Due to diverse relationships between menstrual hygiene facilities and class attendance, the study concludes that enhanced WASH facilities promote girls' attendance while inadequate facilities hinder the attendance.

Based on the conclusions, the study recommends that the Ministry of Education and Sports should prioritize provision of adequate WASH facilities in primary schools. In addition, the government should ensure that interventions from development and/or education partners maximize the provision of quality WASH facilities for enhanced girls' school attendance.

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