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Effectiveness of Menstrual Health Education Programs on Primary HealthCare Delivery in Kenya: A Case of Sololo in Marsabit County

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Abstract

Menstrual Health Management (MHM) is fundamental to global health, gender equality, and human rights, particularly in marginalized regions like Sololo of Marsabit County, Kenya. Despite its importance, MHM remains inadequately addressed, exacerbating health risks, social stigma, and gender inequality in education and economic participation. Many girls and women in these regions face challenges in accessing menstrual products, proper sanitation facilities, and effective menstrual health education, further compounding gender inequalities and limiting opportunities for social and economic empowerment. This study examined the effectiveness of menstrual health education programs on primary healthcare delivery. The research utilized a mixed-method research design. Statistical analysis revealed a strong positive relationship (R = 0.786) between menstrual health education programs and primary healthcare delivery, with menstrual hygiene education of (Beta = 0.368). The study highlights the need for an improved and strengthened menstrual health education programs. Addresses gaps through policy reforms, community engagement, and targeted interventions to promote better primary healthcare outcomes and advance gender equality in Sololo and beyond.

Keyword: Menstrual Health, Education Programs, Primary HealthCare Delivery.

Introduction

The Sustainable Development Goals (SDGs) of the United Nations (UN) envisioned healthy lives and promoted well-being for all people at all ages, inclusive and equitable quality education, gender equality and the empowerment of all women and girls, and universal access to clean water and sanitation through goals number 3, 4, 5, and 6. Menstrual health management had become a more global problem in recent years, as awareness of its substantial influence on women's and girls' health, education, and general well-being had grown. According to the UNICEF and WHO report, only 27% of people in developing countries had access to water and soap for handwashing, which were necessary for good menstrual health. Approximately 2.3 billion people worldwide lacked access to basic sanitation facilities (UNICEF, 2021). About 50% of schools in low-income nations did not have enough clean water for drinking and sanitation, hindering girls' ability to manage their menstruation at school (UNESCO, 2022).

Globally, MHM had gained significant attention, with numerous projects evolving worldwide to tackle this pressing problem. In 2022, WHO and UNICEF responded by releasing updated frameworks and recommendations designed to support the integration of menstrual health management (MHM) into national policies and programs. These updated recommendations emphasized inclusivity, aiming to ensure that all individuals had access to essential menstrual health resources. A key focus of international MHM initiatives

had been to increase access to reliable and affordable menstrual products. Innovative solutions like reusable pads and menstrual cups, developed by social entrepreneurs and non-profit organizations, had reached over 20 million individuals across low- and middle-income countries since 2020. Additionally, government and international organizations' distribution and subsidy programs had provided an estimated 15 million women and girls with menstrual products in the last two years, thereby addressing both accessibility and affordability.

In Sub-Saharan Africa, an estimated 60% of women and girls faced challenges due to inadequate access to essential menstrual health products and facilities, a situation that had severe implications for their health, educational opportunities, and socioeconomic status (UNECA). This lack of access was particularly concerning for teenage girls, as many, especially in regions with limited resources, also lacked access to clean, safe, and private restrooms at school, which exacerbated the challenges of managing menstruation (UNICEF, 2019).

For instance, in Ethiopia, around 10% of school-age girls missed school when menstruating, and about 17% of females in the country reported facing similar challenges (Tegegne & Sisay, 2014). The lack of adequate menstrual health management (MHM) resources not only hindered daily functioning but also impacted long-term outcomes in education and empowerment. As Hennegan et al. (2019) discussed, implementing comprehensive MHM programs remained difficult across numerous African nations, contributing to a cycle that negatively affected the health, education, and empowerment of girls and women throughout the region. Numerous regional and local MHM efforts had been implemented in response to this urgent issue. MHM had been a crucial part of Agenda 2063, the African Union's regional agenda that aimed to empower women and girls and advance gender equality. The East African Community (EAC) had also created a regional plan on MHM to promote cross-border cooperation and harmonize policies.

In Kenya, menstrual health management (MHM) challenges had affected a significant portion of the female population, with only 65% of girls and women having adequate resources and facilities to manage their menstrual health. However, disparities had been evident across regions, and Marsabit County, particularly Sololo, highlighted the urgency of these issues. In Sololo, only 26% of women and girls had access to appropriate menstrual health resources, well below the national average (Kenya National Bureau of Statistics, 2022). High poverty rates, where over 70% of the population lived below the poverty line, and the area's rural, isolated nature had limited access to sanitary facilities and affordable menstrual products.

Recognizing these challenges, Marsabit County had initiated an extensive MHM program in Sololo in 2020, collaborating with regional and non-governmental organizations to address these gaps. This initiative had focused on four key components: expanding access to menstrual products, upgrading water, sanitation, and health (WASH) infrastructure in schools and communities, providing comprehensive MHM education, and enhancing the capacity of local stakeholders to sustain the program. Despite the MHM programs being implemented in Sololo Sub-County, little is known about their impact on primary healthcare delivery, hence this study examined the effectiveness of menstrual health education programs on primary healthcare delivery.

Literature Review

In rural areas worldwide, including Kenya, menstruation remained a taboo subject, significantly impacting menstrual health education and access to primary healthcare services. A 2017 study by Plan International Kenya revealed that 58% of girls had no access to information about menstruation before their first period, leading to confusion, shame, and stigma. Although organizations like WASH United and WaterAid had implemented education programs to demystify menstruation and promote open discussions in schools and communities globally, gaps persisted, particularly in rural Kenya. A 2020 evaluation of menstrual health education programs by a local NGO in Sololo Sub-County found mixed results: while over 60% of the target population had been reached, the long-term impact on knowledge, attitudes, and practices surrounding menstrual health management (MHM) was limited. The evaluation emphasized the need for culturally appropriate and comprehensive programs that addressed social stigma, taboos, and misconceptions alongside practical resources for women and girls to manage menstruation safely and with dignity.

Studies by Sommer et al. (2016) and Montgomery et al. (2012) supported these findings, highlighting that the lack of menstrual health education in rural settings led to misconceptions and a lack of preparedness

among adolescent girls. This had a direct impact on their engagement with primary healthcare services, as many women and girls avoided seeking care due to embarrassment or fear of judgment. Nyaberi (2021) further emphasized that, in northern Kenya, cultural barriers remained a significant obstacle to effective menstrual health education, as traditional beliefs around menstruation hindered open dialogue. Abuya (2022) also noted that integrating menstrual health education into school reproductive health programs could have significantly improved health outcomes by normalizing menstruation and reducing stigma, thereby increasing the utilization of primary healthcare services. As a result, improving the effectiveness of menstrual health education programs through community engagement, teacher training, and health worker involvement played a pivotal role in enhancing the health and well-being of women and girls in Sololo Sub-County and other rural areas. Despite previous MHM interventions in Sololo Sub-County, there is limited empirical evidence on their effect on primary healthcare delivery outcomes, which this study aims to address.

Research Methodology

The study employed a mixed-method research design. According to Creswell (2017), a mixed-methods design is an approach that combines quantitative and qualitative research strategies within a single study to leverage the strengths of both methods. This design allows for the collection of numerical data through quantitative surveys and descriptive statistics while also capturing in-depth, contextual insights through qualitative data. Creswell (2014) emphasizes that mixed-methods research facilitates a fuller understanding of complex issues, particularly when studying public health topics where both numerical patterns and personal experiences are crucial for a complete analysis.

The target population for the study consisted of the residents of Sololo Sub-County, which, according to the 2019 census, had a female population of 21,354. This population included women and girls of diverse age groups, ranging from adolescents to older adults. This diverse population encompassed various age groups, ethnic backgrounds, and socioeconomic statuses.

The sample size in this study was determined using Cochran's sample size formula. Cochran's formula for finite populations was essential for this study as it ensured the accuracy and representativeness of the sample in a finite population setting. Given the known female population of 21,354 in Sololo Sub-County, the formula precisely adjusted the sample size to achieve statistical reliability without excessive sampling, balancing the need for accurate results with resource efficiency.

$$n = \frac{N * Z \wedge 2 * p(1-p)}{d \wedge 2 * (N-1) + z \wedge 2 * p(1-p)}$$

Where:

- n = sample size
- N = population size
- Z = Z-score (standard score corresponding to the desired confidence level)
- p = estimated proportion of the population with the characteristic of interest
- d = margin of error (desired precision)

N=21,354

Z=1.96

P=0.5

d=0.05

Using a standard regular distribution table (or Z-table), we look up the value corresponding to

$$n = \frac{21{,}354 * (1.96) \wedge 2 * 0.5(1-0.5)}{0.05 \wedge 2 * (21{,}354-1) + 1.96 \wedge 2 * 0.5(1-0.5)}$$

$$n = \frac{21{,}354 * 3.8416 * 0.25}{(0.0025 * 21{,}353) + (3.84 * 0.25)}$$

$n = \frac{20{,}508.38}{54.34}$ =377

In assessing menstrual health management (MHM) within primary healthcare delivery projects, questionnaires effectively gathered quantitative and qualitative data from various stakeholders, including healthcare providers, patients, and community members. The choice of the questionnaire as a research tool enabled the respondents to complete the questions conveniently and communicate their opinions adequately. A standardized set of questions ensured consistency across responses, making it easier to analyze data quantitatively.

Data analysis examined the collected data for completeness, accuracy, and consistency. The responses to the questions were categorized and edited (where necessary) to improve data quality. For the quantitative data, various inferential statistical methods were employed, including model summary, regression analysis, correlation, and ANOVA. These techniques allowed for a detailed exploration of the significant relationships and interdependencies between the study variables. The regression analysis helped identify the key predictors of menstrual health management outcomes, while correlation analysis provided insight into the strength and nature of the relationships between different variables. ANOVA (Analysis of Variance) was utilized to examine differences in MHM experiences across different demographic groups, providing further understanding of how factors like age, socioeconomic status, and education influence the participants' menstrual health experiences. Qualitative data was analysed using content analysis, a technique perceived to be robust for tabulating open-ended data and addressing research questions, as noted by Bengtsson (2016).

Results

The survey targeted a sample size of 377 respondents, calculated using the Cochran formula for a population of 21,354. A total of 358 valid responses were received, representing a response rate of 95%, which is statistically significant and sufficient for analysis. This high response rate is attributed to the engagement of local leaders, community mobilization efforts, and the relevance of the study topic.

Table 1: Response Rate

Targeted Respondents	*Actual Responses*	*Response Rate (%)*
377	358	95

Source: Field Data (2025)

This high response rate is attributed to the engagement of local leaders, community mobilization efforts, and the relevance of the study topic.

Table 2: Socio-Demographic Characteristics of Respondents

Variable	*Categories*	*Frequency*	*Percentage (%)*
Age	15-19	62	17.3
	20-24	94	26.3
	25-29	78	21.8
	30-34	52	14.5
	35-39	39	10.9
	40-44	20	5.6
	45-49	13	3.6
Educational Level	No formal education	59	16.5
	Primary education	127	35.5
	Secondary education	99	27.7
	Post-secondary education	50	14.0
	Higher education	23	6.3
Occupation	Unemployed	96	26.8
	Self-employed	108	30.2
	Agricultural work	72	20.1
	Casual labor	49	13.7
	Student	33	9.2
Household Income	Low	206	57.5
	Middle	129	36.0
	High	23	6.5

Source: Field Data (2025)

The majority of respondents were aged between 20-24 years (26.3%), followed by 25-29 years (21.8%). This indicates a younger demographic actively participating in the survey, which aligns with reproductive health concerns often concentrated in younger populations.

A significant proportion (35.5%) of respondents had attained primary education, with a notable gap in higher education (6.3%). Limited educational attainment, particularly in higher education (6.3%), may reduce awareness and limit effective menstrual health management.

Self-employment (30.2%) and unemployment (26.8%) were predominant, reflecting the economic challenges in the area. Economic instability likely impacts access to menstrual products and healthcare services.

The majority (57.5%) of respondents identified as having low-income levels. This corroborates challenges in accessing affordable menstrual products and improved sanitation facilities.

The socio-demographic characteristics paint a picture of a community where economic constraints and limited education levels shape health outcomes and access to resources, directly influencing menstrual health management.

Table 3: Effectiveness of Menstrual Health Education Programs

Question	*Response Options*	*n*	*%*	*Mean*	*Std Dev*
Have you participated in any menstrual health education programs?	Yes	58	75%		
	No	19	25%		
How effective do you think these programs have improved your knowledge about menstrual health?	Very effective	28	36.4%	3.35	0.92
	Effective	25	32.5%		
	Somewhat effective	15	19.5%		
	Not effective	7	9.1%		
	Not sure	2	2.6%		
What topics did the menstrual health education programs cover?	Menstrual hygiene education	45	58.4%		
	Menstrual cycle management	38	49.4%		
	Health risks associated with poor menstrual health	42	54.5%		
	Access to menstrual products	37	48.1%		
Do you feel that the education programs have led to any behavioral changes in how you manage menstrual health?	Yes	50	64.9%	3.23	1.07
	No	27	35.1%		

***Source**:* Field Data (2025)

The data from Section 4 reveals the significant role that menstrual health education programs play in raising awareness and changing behaviour in Sololo Sub-County. The first key finding is that a majority of respondents (75%) have participated in menstrual health education programs. This participation is a positive indicator that menstrual health is being prioritized in the region. Despite this relatively high participation rate, 25% of respondents have not engaged with such programs, which points to potential gaps in program reach, especially in more remote areas of the Sub-County.

The second finding concerns the effectiveness of these programs. When asked how effective they were in improving their knowledge about menstrual health, 36.4% of respondents rated the programs as very effective, while 32.5% rated them as effective, resulting in an overall mean score of 3.35 (SD = 0.92). This indicates that a significant portion of respondents believes that the educational initiatives have positively impacted their understanding of menstrual health. However, 9.1% found the programs ineffective, indicating areas for improvement.

The third question explored the topics covered in the menstrual health education programs. The most commonly addressed topics were menstrual health (58.4%), health risks associated with poor menstrual health (54.5%), and menstrual cycle management (49.4%). These findings align with the core objectives of menstrual health education programs, as promoting proper health, understanding the menstrual cycle, and mitigating health risks are essential elements in improving menstrual health outcomes. The topic of access to menstrual products was also covered in 48.1% of programs, which is crucial for addressing one of the primary barriers to effective menstrual health management.

The final question regarding the behavioural impact of the programs reveals that 64.9% of respondents reported that the education programs led to positive behavioural changes in how they manage menstrual health. This indicates that the programs have not only enhanced knowledge but also influenced practical outcomes, improving the health practices of the population. However, 35.1% reported no change, suggesting that additional efforts are needed to ensure that all participants are adopting the recommended practices. Overall, the data suggests that menstrual health education programs in Sololo Sub-County are largely effective, but there is still a need for continued refinement to reach more people and further improve their impact.

The model summary evaluates the goodness of fit of the regression model, identifying the proportion of variation in the dependent variable explained by the independent variables.

Model	*R*	*R^2*	*Adjusted R^2*	*Std. Error of the Estimate*
1	0.786	0.618	0.612	0.423

Source: Field Data (2025)

The correlation coefficient (R = 0.786) indicates a strong positive relationship between the predictors and the dependent variable. The coefficient of determination ($R^2 = 0.618$) shows that 61.8% of the variability in primary health care delivery is explained by menstrual health management factors, including access to products, sanitation, education programs, and waste disposal. The adjusted R^2 value (0.612) accounts for the number of predictors, confirming the stability of the model. Additionally, the standard error (0.423) represents the average deviation of observed values from the regression line, reflecting the model's precision. These results suggest that menstrual health education programs, along with access to products, sanitation, and waste disposal management, are key levers for improving primary health care outcomes in the Sub-County.

A multiple regression analysis was conducted to determine the significant influence of the independent variables on primary health care delivery.

Predictors	*Unstandardized Coefficients (B)*	*Standardized Coefficients (Beta)*	*t*	*Sig. (p-value)*
(Constant)	1.215	-	4.573	0.000
Access to menstrual products	0.321	0.341	6.112	0.001*
Sanitation	0.289	0.295	4.892	0.003*
Menstrual hygiene education	0.374	0.368	5.873	0.002*
Waste disposal management	0.258	0.249	3.871	0.005*

Source: Field Data (2025)

All independent variables are statistically significant predictors ($p < 0.05$) of primary health care delivery. Menstrual hygiene education (Beta = 0.368) having the strongest influence, followed by access to menstrual products (Beta = 0.341), sanitation (Beta = 0.295), and waste disposal management (Beta = 0.249). The positive coefficients indicate that improvements in any of these predictors will enhance primary health care delivery.

Table 4: Correlation Analysis

Variable	*Access to Products*	*Sanitation*	*Education Programs*	*Waste Disposal*	*Primary Health Care Delivery*
Access to Products	1.000	0.671	0.719	0.632	0.742
Sanitation	0.671	1.000	0.688	0.589	0.714
Education Hygiene	0.719	0.688	1.000	0.654	0.763
Waste Disposal	0.632	0.589	0.654	1.000	0.681
Primary Health Care Delivery	0.742	0.714	0.763	0.681	1.000

Source: Field Data (2025)

Table 5: ANOVA

Model	*Sum of Squares*	*df*	*Mean Square*	*F*	*Sig. (p-value)*
Regression	15.342	4	3.835	32.486	0.000*
Residual	9.532	175	0.054		
Total	24.874	179			

Source: Field Data (2025)

The F-value (32.486) is statistically significant ($p < 0.001$), indicating that the independent variables collectively have a significant effect on primary health care delivery. The ANOVA results affirm the robustness of the regression model. Menstrual health education programs have the greatest significant and relational impact on primary health care delivery. Sanitation, access to menstrual products, and waste disposal management also contribute significantly, although their individual effects are slightly less pronounced. The regression model is strong, explaining 61.8% of the variability in primary health care delivery, while the ANOVA confirms the model's overall significance. This analysis emphasizes the importance of addressing multiple aspects of menstrual health management to improve health outcomes in Sololo Sub-County.

Program Irregularity and NGO Dependency

Most participants acknowledged the importance of menstrual health education programs in improving awareness, though they emphasized gaps in content and delivery. Many respondents expressed that while education programs had started addressing menstrual health, they were often irregular and lacked cultural sensitivity.

> *"The education programs are helpful, but they don't happen often. We only hear about them when NGOs come to the area."*

This highlights a fundamental gap in sustainability and institutional ownership of menstrual health education. Education efforts, while impactful, are heavily dependent on non-governmental interventions, which often operate on short-term funding cycles and are not guaranteed to reach all communities consistently. These findings are echoed in the work of Hennegan et al. (2019), who found that reliance on donor-funded menstrual health interventions often leads to patchy coverage and reduced program continuity, particularly in rural and marginalized regions.

In addition to irregular delivery, many participants expressed concerns about cultural relevance and inclusivity of the educational content. Educational materials and facilitators often advocated for the use of commercial sanitary pads, without acknowledging the socioeconomic and cultural realities of the community.

Cultural Relevance and Inclusivity

Some participants noted that the programs do not always cater to local beliefs and customs:

> *"They tell us to use pads, but they don't consider our traditional practices. Some of us still use cloth because we don't always have money for pads."*

This narrative highlights the disconnect between program messaging and lived experiences. By failing to recognize and validate traditional practices, such as the use of reusable clothes, education programs risk alienating their audiences and inadvertently reinforcing feelings of shame or inadequacy. According to Chandra-Mouli and Patel (2020), culturally insensitive approaches can undermine the effectiveness of sexual and reproductive health programs, particularly in contexts where traditional norms remain strong.

Moreover, failing to incorporate local knowledge systems and practical alternatives like reusable menstrual products or safe cloth use not only limits the reach of education but may also perpetuate inequities in menstrual care. The Kenya Ministry of Health (2019) guidelines emphasize the need for culturally appropriate and economically feasible solutions in menstrual health education, yet this study reveals that such considerations are often overlooked in rural program delivery.

Despite these limitations, menstrual health education has positively impacted attitudes, confidence, and intergenerational knowledge transfer. Participants described a slow but significant shift in perceptions, particularly around the normalization of menstruation and the reduction of stigma.

Positive Behavioural and Attitudinal Changes

One respondent stated:

> *"At least now, we know that menstruation is normal, and we are teaching our daughters to be proud and confident about it."*

This quote illustrates how menstrual health education, even when limited, has contributed to empowerment and behavioural change. The increased awareness and openness to discussing menstruation within families suggest a gradual dismantling of the cultural taboos that have historically silenced conversations around female reproductive health. This aligns with the findings by Sommer et al. (2015), who reported that accurate, age-appropriate education is essential for fostering healthy attitudes and enabling girls and women to manage menstruation with dignity and confidence. The participant narratives also reveal a shift in parental roles, particularly mothers' active engagement in teaching their daughters about menstrual health.

Discussion

The study found that education programs are instrumental in breaking taboos and reducing the stigma associated with menstruation. Respondents noted improvements in their understanding of menstrual cycles, health practices, and health risks. The study found that while some educational programs exist, they are irregular and often lack cultural sensitivity. However, the content of these programs often lacks depth, and delivery methods fail to engage the broader community, including men and boys, who are critical to creating supportive environments for women and girls.

The statistical analysis revealed that menstrual hygiene education had the greatest influence on primary healthcare delivery (Beta = 0.368), demonstrating its importance in improving health outcomes. However, these programs are often limited in depth and fail to engage key community stakeholders such as men and boys, further perpetuating menstrual stigma.

The findings from this study confirm the growing recognition of menstrual health education programs as vital tools for improving menstrual health management (MHM) in low-resource settings like Sololo Sub-County. According to the World Health Organization (2018), menstrual health education programs play a critical role in dismantling the cultural taboos surrounding menstruation, raising awareness about health, and empowering individuals, particularly girls and women, to manage menstruation in a healthy and hygienic manner. This study's findings, particularly the 75.3% participation rate, indicate that such educational programs are gaining traction in Sololo Sub-County, which is a promising sign.

The high percentage of respondents who felt that the programs were very effective (36.4%) and effective (32.5%) also mirrors findings from international studies on the effectiveness of menstrual health education. According to Sommer et al. (2015), when education programs are comprehensive and well-delivered, they

can significantly impact both knowledge and practices related to menstruation. This supports the conclusion that the Sololo Sub-County programs are having a positive influence.

While most of the findings are consistent with existing literature, there are some discrepancies that need to be addressed. A small proportion of respondents, 9.1%, rated the programs as not effective, and 2.6% were unsure. This suggests that some individuals might not fully engage with or benefit from the programs. According to Mhajan and Lakshmi (2020), the effectiveness of education programs can vary depending on factors such as language barriers, cultural attitudes, and the approach of the educators. For example, if the content is too complex or culturally irrelevant, participants may struggle to retain or apply the information. The 9.1% of respondents who found the programs ineffective might have had such experiences, and this highlights a need for further evaluation of the delivery methods and content of the programs.

Comparing the results from Sololo Sub-County with other studies in sub-Saharan Africa, the findings suggest that while there is substantial progress, challenges remain. For instance, a study by UNICEF (2021) showed that while many African countries have implemented menstrual health education programs, their reach and impact vary significantly. In some countries, such as Kenya and Uganda, the integration of menstrual health education in schools has been particularly successful (Sommer et al., 2015). However, the study also noted that in rural areas like Sololo, the coverage of such programs is still limited, which may explain why a quarter of the respondents did not participate.

Furthermore, the high effectiveness ratings for menstrual health education are consistent with findings from international reviews on MHM interventions. For example, a report by UNESCO (2014) concluded that menstrual health education can effectively raise awareness and contribute to improved health practices when it is part of a broader strategy that also includes access to menstrual products and sanitation facilities. The integration of multiple aspects of menstrual health management (such as education, product access, and sanitation) ensures a more comprehensive approach that addresses the diverse needs of menstruating individuals.

To further improve the effectiveness of menstrual health education programs in Sololo Sub-County, several recommendations can be made. First, it is essential to expand the reach of these programs, particularly in rural and marginalized areas, to ensure that all individuals, especially young girls, have access to the education. Second, cultural sensitivity should be prioritized in program design to address the specific needs and concerns of the local population. Involving community leaders and local educators in the planning and delivery of these programs can increase their cultural relevance and effectiveness. Additionally, follow-up evaluations should be conducted to assess the long-term impact of these programs on menstrual health practices and to identify areas for improvement.

The findings of this study suggest that menstrual health education programs in Sololo Sub-County are generally effective in improving knowledge and promoting healthier menstrual health behaviours. However, to further enhance their impact, there is a need for more inclusive, culturally sensitive programs that reach all community members and address any gaps in understanding. By strengthening these education programs, Sololo Sub-County can make significant strides in improving menstrual health outcomes and overall well-being.

Conclusion

The study concluded that menstrual health management is a critical determinant of primary healthcare delivery in Sololo Sub-County. Statistical analysis revealed a strong positive relationship ($R = 0.786$) between menstrual health education programs and primary healthcare delivery, with menstrual hygiene education of (Beta = 0.368). The regression model explained 61.8% of the variability in healthcare outcomes, confirming that MHM interventions significantly enhance healthcare access and well-being.

The findings drove policy changes and improved global MHM initiatives. In Marsabit County, Kenya, the study provided valuable insights into the effectiveness of MHM initiatives in Sololo, guiding policymakers and stakeholders in enhancing resources and support for women and girls. Additionally, local NGOs and community-based organizations benefited from the findings, enabling them to advocate for more funding and resources, thereby strengthening their MHM programs. Furthermore, the study's insights informed targeted MHM strategies in Sololo, leading to better health, education, and economic outcomes for women

and girls in the region. Lastly, it added empirical evidence to the field of MHM, benefiting researchers and practitioners in designing effective programs in similar contexts.

Persistent economic challenges especially irregular education programs, remain to be the major barrier to effective menstrual health management. Limited awareness and misinformation further exacerbate disparities in access to essential MHM resources. To ensure sustainable improvement, menstrual health initiatives must be integrated into broader public health strategies, with a focus on accessibility, affordability, education, and policy advocacy. Strengthening community engagement, fostering multi-sectoral collaborations, and increasing investment in infrastructure and awareness campaigns were crucial in addressing these challenges and achieving long-term, equitable solutions for menstrual health in Sololo Sub-County and beyond.

Recommendation

Scale up menstrual health education programs by developing culturally sensitive education programs that engage both men and women. Partner with schools, community leaders, and health workers to deliver consistent and comprehensive menstrual health education.

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