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"Menstrual Hygiene Management: A Comprehensive Review Of Current Practices, Challenges, And Interventions"

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ABSTRACT

Menstrual hygiene management (MHM) continues to be a serious health concern that impacts millions of women and girls around the world. This is a systematic review of the contemporary practices, issues, and interventions in menstrual hygiene on the basis of 13 current publications that were published in 2023-2024. The review summarizes the evidence on menstrual hygiene practices in various groups, pinpoints the major barriers to proper MHM and assesses the efficacy of diverse interventions. Most important results are that 39 percent of schools worldwide teach menstrual health education [1], where there are great differences in access to hygienic menstrual products and the proper facilities. The review identifies the complexity of the topic of menstrual hygiene issues in its socio-economic, cultural, educational, and infrastructural dimensions [7,8,11]. There is evidence to believe that interventions that are holistic, involving education, product delivery, and infrastructure are potentially useful in improving menstrual hygiene practices [8,14]. The results highlight the importance of combined efforts that would focus on the short-term requirements and systemic obstacles that would guarantee menstrual dignity among everyone.

Keywords:
Menstrual Hygiene, Menstrual Health, Adolescent Girls, Public Health, Hygiene Management

INTRODUCTION

Menstruation is a natural biological event that is undergone by half of the world population during their reproductive age. Although it is universal, menstrual hygiene management continues to be a major problem in many countries in the world, especially in low and middle income nations [2,8,11]. An average of 800 million women around the globe are in their menstrual periods on any given day, yet 500 million of them are estimated to have no access to menstrual products and proper amenities to manage the menstrual hygiene [2]. Management of menstrual hygiene includes absorbing or collecting menstrual fluid with clean menstrual management materials, which should be changed in privacy as often as needed during the menstrual period, washing the body with soap and water as needed, and access to facilities to dispose menstrual management material used [3]. Poor menstrual hygiene has implications beyond the health to educational, economic, and social consequences that may further contribute to gender inequalities [1,2,8].

Global evaluations confirm that there are terrifying deficiencies in the menstrual health support systems [1,2]. During the past 10 years, there has been a markedly low representation of 2 out of 5 schools (39%), which offer menstrual health education [1] and that shows the dire need to have widespread interventions that consider both infrastructural and educational elements of menstrual health. This systematic review seeks to summarize the existing evidence on menstrual hygiene practices and the

barriers and challenges associated with them, to examine the intervention strategies, and to make some recommendations about future research and policy formulation. The review is based on the current research published between the years 2023-2024, to offer current insights into the existing knowledge about menstrual hygiene management worldwide.

METHODOLOGY

This comprehensive review employed a systematic approach to identify and analyze recent trends, practices and challenges and also the management interventions of menstrual hygiene.

Inclusion criteria:

- Research articles published by peer-reviewers.
- Research on menstrual hygiene and management.
- Studies on women and reproductively-aged girls.
- Intervention/ barrier/ outcome studies of menstrual hygiene.
- Original studies, systematized reviews and cross sectional studies.

Data extraction:

Data were being picked on study design, population characteristics, geographical location, key findings, methodological approaches and implications to practice and policy.

LITERATURE REVIEW AND ANALYSIS

Study 1: global gaps in school-based menstrual health support

In 2024, following a thorough world survey by WHO and UNICEF, found that there were considerable gaps in menstrual health care services in the learning institutions. The researchers concluded that merely 39 percent of schools globally teach menstrual health education with less illustrating sufficient amenities in menstrual health control. This paper has shown that schools play a significant role in the promotion of menstrual health and policy interventions are urgently required [1].

Study 2: challenges in Tanzanian schools

One such study involved a school based study in Siha, Kilimanjaro, Tanzania, which investigated the difficulties that adolescent girls have in managing menstrual hygiene. The study identified several obstacles such as the unavailability of proper sanitation, inadequate privacy, poor information about menstruation and access to menstrual supplies. The research highlighted the importance of school-based interventions that can be done in both infrastructural and educational aspects [4].

Study 3: rural India practices and barriers

A study in rural field practice settings of one tertiary care facility in Rishikesh, India discovered that only 70 (29.6) subjects followed satisfactory menstrual hygiene practices. The research also found that age to be a major factor, with the women between 20-24 years exhibiting a higher adherence rate. The discussions of the focus groups covered the most essential themes connected with personal hygiene maintenance and cultural obstacles to proper menstrual care [5].

Study 4: Indian national data analysis

National data conducted in India indicated 78 percent hygienic method of protection, like locally prepared napkins, sanitary napkins, tampons and menstrual cups. Sanitary napkins being the most common method with 64% use among women aged 15-24. According to the study, however, half of young women continue to use cloth on menstruation, and this suggests that access to modern menstrual products continues to have gaps [6].

Study 5: comprehensive assessment in Odisha, India

In Odisha, India, a systematic investigation evaluated the level of knowledge and practices associated with menstrual health and hygiene in females between the age of 10 and 49 years. The study examined the experiences of menstruation and challenges, and established the predictors of healthy menstrual hygiene practices. Results also highlighted the role of education, economic status as well as family support in dictating the outcomes of menstrual hygiene [7].

Study 6: systematic review of MHM interventions

A systematic review conducted on menstrual hygiene management interventions and their impact on the experiences of school girls in low and middle-income countries presented useful information on effective intervention programs. It was shown that many methods were analyzed during the review such as product provision, education programs, and improvement of the facilities, with the emphasis on multi-component interventions [8].

Study 7: disaster and displacement barriers

A qualitative investigation was done in Pakistan on barriers to menstrual hygiene practices of women in case of a disaster and displacement, identified distinct problems of vulnerable groups. The study found essential gaps in the emergency response systems in terms of menstrual health support and pointed out the risk of infection and health problems increase during crises [9].

Study 8: Ethiopian school-based mixed methods study

The study was a mixed-method study involving high school and preparatory school students in Debremarkos town, northwest Ethiopia, and involved examination of menstrual hygiene management practices and factors related to the management among students. The study gave information on cultural, educational, and socio-economic factors of menstrual hygiene practices in the Ethiopian situation [10].

Study 9: period poverty in eight countries

A cross-country study of period poverty in eight countries with low or middle income, involved a study of socio-economic disparities in the management of menstrual hygiene. The research found that there were considerable differences in access to menstrual products and facilities according to economic status and geographic area and social factors [11].

Study 10: environmental impact assessment

Studies relating to the environmental effect of menstrual hygiene items brought out sustainability issues on menstrual health management. The paper has observed that worldwide production and consumption of 12 billion disposable menstrual management products each year, is an estimated producer of 245,000 tonnes of carbon dioxide per year, which has necessitated the development of environmentally friendly menstrual management solutions [12].

Study 11: urban slum area analysis

One study carried out in urban slum regions of Karad, Maharashtra, looked at the practices of menstrual hygiene among adolescent girls in the resource-limited urban context. The study showed inadequate practices in menstrual hygiene and brought to the fore the specific difficulties girls in informal settlements have to cope with [13].

Study 12: innovation and empowerment approaches

An article on the issues of menstrual hygiene and how to overcome these challenges in order to achieve better menstrual health outcomes investigated new methods of enhancing menstrual health outcomes

using innovation and empowerment. The study has highlighted the role of community mobilization, technology, and empowerment in solving the menstrual hygiene issues [14].

Study 13: humanitarian crisis MHM review

A systematic review of menstrual hygiene management in humanitarian disasters and emergencies in low and middle-income countries compared the special issues when there was an emergency in the domain of public health. The review identified significant gaps in emergency preparedness in relation to menstrual health support and on emergency preparedness special interventions in emergency situations [15].

KEY FINDINGS AND THEMES

1. Access and availability challenges

The studies reviewed are all very consistent in pointing out that there are huge gaps in access to menstrual products and facilities. Limited access to the right menstrual hygiene material is caused by economic, geographic, and insufficient supply chains [6,11].

2. Educational gaps

Lack of knowledge about menstruation and good hygienic practices also come out as a leading impediment in all studies. The inadequacy of menstrual health education at schools and communities promotes myths, misconception, and poor practices [1,4,10].

3. Infrastructure deficiencies

Sanitation facilities (especially in schools and the community) are also a great hindrance to effective menstrual hygiene management. These are increased by a lack of privacy, clean water and disposal facilities [3,4,9,15].

4. Cultural and social prejudices

The culture of stigma, taboos, and cultural restrictions towards menstruation remain hindrances towards proper practice of menstrual hygiene. Such social obstacles tend to inhibit but not discuss and receive relevant support and resources [4,7,10].

5. Intervention effectiveness

The research shows that the interventions involving a combination of education, the provision of products, and improvements in infrastructures are the most effective in enhancing the outcome of menstrual hygiene [8,14]. Multi-component methods that focus on numerous barriers at once are more successful.

Table 1: Summary table of reviewed studies

Study	Location	Population	Sample size	Key findings	Intervention type
WHO/UNICEF global report [1]	Global	School-aged girls	Multiple countries	39% schools provide MHM education	Policy assessment
Tanzania school study [4]	Kilimanjaro, Tanzania	Adolescent girls	School-based	Multiple barriers identified	Cross-sectional
Rishikesh rural study [5]	Uttarpradesh, India	Women 15-49	236 participants	29.6% satisfactory practices	Cross-sectional
India national analysis [6]	India	Women 15-24	National sample	78% use hygienic methods	Secondary analysis
Odisha comprehensive study [7]	Odisha, India	Females 10-49	Multi-age group	Knowledge-practice gaps	Cross-sectional
MHM intervention review [8]	LMICs-Low-Middle Income Countries	Schoolgirls	Multiple studies	Multi-component effectiveness	Systematic review-PRISMA
Disaster barriers study [9]	Pakistan	Displaced women	Qualitative sample	Crisis-specific challenges	Qualitative
Ethiopian school study [10]	Northwest Ethiopia	Students	School-based	Cultural-educational factors	Mixed methods
Period poverty analysis [11]	8 LMICs	Women/girls	Multi-country	Socio-economic disparities	Comparative
Environmental impact [12]	Global	General population	Literature review	245,000 tonnes Co2 annually	Environmental
Urban slum study [13]	Urban slums	Adolescent girls	Community-based	Unsatisfactory practices	Cross-sectional
Innovation study [14]	Multiple	Various	Literature review	Technology-empowerment focus	Review
Humanitarian crisis review [15]	LMICs	Emergency-affected	Multiple studies	Crisis preparedness gaps	Systematic review

DISCUSSION

The summation of the recent findings denotes the constant and broad-based obstacles in menstrual hygiene administration throughout the world. Although in recent years, the matter of menstrual health has been given a proper focus, access, education, infrastructure, and support systems still have a major gap of loss.

Critical gaps identified

Infrastructure and facilities: most of the researches point at insufficient sanitation facilities as a key impediment. Basic needs like private and clean space with water and disposal are usually not available in schools, working places and even in public space [3,4,9].

Education and awareness: the fact that, most schools around the world offer menstrual health education to only 39 percent of the students is a major failure in educating young individuals about this natural biological action [1]. Black holes in education add to misunderstandings and stigma and poor practices of MHM 1,4,5,7,10].

Economic barriers: poverty is one of the key factors manifested in numerous studies, and many women and girls cannot afford the right menstrual products. This health, education, and social participation have rippling effects as a result of this economic barrier [2,11].

Cultural and social factors: menstrual taboos and stigma are still affecting progress. The cultural taboos usually do not allow women and girls to use proper care and help when they are menstruating [4,5,7,10].

Effective intervention strategies

1. **Competent intervention strategies.**
According to the reviewed literature, the successful menstrual hygiene interventions have similarities and are follows:

- **Holistic solution**: multi-component programs which cover the education, products, and infrastructure are proven to be more effective than single-component ones [8].
- **Community engagement**: community leaders, families, and peer networks programs prove to be more sustainable and accepted [7,14].
- **School-based integration**: the schools offer key forums through which adolescents can be contacted at the younger age when menstrual health patterns are developed [1,4,8,10].
- **Cultural sensitivity**: the interventions that recognize and operate in the cultural contexts and oppose the unhealthy practices are more successful [7,10,14].

2. Special populations and contexts
The review identifies some of the vulnerabilities of some populations:

- **Populations affected by crisis**: women who are displaced and those who have been affected by emergency have special needs that demand specially-made interventions and preparedness planning [9,15].
- **Rural communities**: rural areas are geographically isolated and lack sufficient infrastructure that needs specific solutions [5,6].
- **Urban slum dwellers**: urban environments that are resource strapped, pose a unique problem as far as privacy, sanitation, and waste disposal are concerned [13].

LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

A number of limitations arise in this review, which are as follows:

1. **Geographic bias**: recent studies are mainly on low and middle-income countries with little representation of the developed countries.
2. **Methodological differences**: it is difficult to compare studies across studies as the designs of the study, the outcome measures and definitions are different.
3. **Long-term follow-up**: in the majority of studies, there are only cross-sectional pictures, but there are no longitudinal evaluations of the intervention effectiveness.

In future research, one should focus on:

- Menstrual outcome research measures that are standardized.
- Long term follow-up study to determine the sustainability of the intervention.
- Economic analyses of alternative intervention methods.
- Studies in under-researched individuals and geographic areas.
- Consolidation of environmental sustainability issues**.**

CONCLUSION

This thorough general review of recent studies over menstrual hygiene management shows a complicated scene of difficulties and chances. Although substantial obstacles still exist worldwide, there is evidence that the positive results in terms of menstrual health may be achieved with help of effective intervention strategies [8,14]. Key factors like universal challenges, multi-component solutions,

importance of schools vulnerable populations, sustainability issues and policy implications are to be considered for better MHM. This is well evidenced by the fact that management of menstrual hygiene is not only a health related problem but also a matter of basic human rights with implications of gender equality, education and social justice [1,2,3,8]. The issue of menstrual hygiene needs to be addressed through the concerted efforts of governments, healthcare systems, educational institutions, communities and individuals [1,8,14].

In the future, the international community needs to focus more on holistic, cross-culturally aware, and sustainable strategies in menstrual health that should guarantee dignity, health, and equal opportunities to all menstruating people. The overlap of findings of the recent literature offers a clear guideline to follow and the large-scale necessity of combined interventions that will focus on the multifaceted nature of menstrual hygiene issues [8,15].

To succeed in enhancing the management of menstrual hygiene in the world, all this will take a long time, sufficient resources, and multi-faceted strategies that will prioritize the needs and rights of women and girls as the core of all interventions [2,3,8,14]. Such thorough intervention is the only way to reach the aim of menstrual equity and make sure that menstruation does not restrain a half of the global population.

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