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Menstrual Poverty and Its Impact on Girls' Education and Empowerment

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ABSTRACT

Menstrual poverty has emerged as a significant public health, social, and gender equality challenge that affects the health, education, and empowerment of adolescent girls and women worldwide. Despite menstruation being a natural biological process, millions of girls continue to experience barriers due to limited access to affordable menstrual products, inadequate sanitation facilities, insufficient menstrual health knowledge, and persistent social stigma. This review aims to examine the multidimensional nature of menstrual poverty and its influence on girls' educational participation and women's empowerment. A systematic literature review approach was adopted by analyzing peer-reviewed studies published between 2000 and 2025 from major academic databases, including Scopus, Web of Science, PubMed, ScienceDirect, and Google Scholar. The review highlights that menstrual poverty negatively affects school attendance, academic performance, psychological well-being, and social participation by creating barriers to safe and dignified menstrual management. Economic constraints, cultural restrictions, limited menstrual education, and poor WASH (Water, Sanitation, and Hygiene) infrastructure were identified as major determinants of menstrual poverty. The findings further indicate that menstrual-related challenges reduce confidence, restrict decision-making abilities, and limit long-term educational and economic opportunities for women. Sustainable solutions require integrated approaches involving menstrual health education, affordable and environmentally friendly menstrual products, improved sanitation facilities, community awareness, and supportive policy interventions. Addressing menstrual poverty is essential not only for improving menstrual health outcomes but also for achieving gender equality, educational equity, and sustainable empowerment of girls and women.

Keywords: Menstrual poverty, Menstrual health management, Adolescent girls, Women empowerment, Gender equality, Sustainable menstrual practices

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Menstruation is a natural biological and physiological process experienced by approximately half of the global population during their reproductive years. It represents an important indicator of female reproductive health and overall well-being. Despite being a normal bodily function, menstruation continues to be associated with inadequate knowledge, social stigma, and limited access to essential hygiene resources in many low- and middle-income countries (World Health Organization [WHO], 2022). Effective menstrual health management (MHM) requires not only access to safe and affordable menstrual products but also adequate information, clean water, sanitation facilities, privacy, and a supportive social environment that enables women and adolescent girls to manage menstruation with dignity (United Nations Children's Fund [UNICEF], 2019). Menstrual health is closely associated with quality of life, physical comfort, psychological well-being, educational participation, and social inclusion. Poor menstrual hygiene practices resulting from inadequate facilities or lack of awareness may increase discomfort, anxiety, embarrassment, and vulnerability to reproductive health problems. Among adolescent girls, the transition into menstruation often coincides with critical stages of physical, emotional, and social development; therefore, inadequate menstrual support can negatively affect their confidence, participation, and overall development (Sommer et al., 2015). Ensuring proper menstrual health management is increasingly recognized as an essential component of women's health, human rights, and gender equality. Menstrual poverty has emerged as a significant public health and social justice issue worldwide. It refers to the lack of access to affordable and appropriate menstrual products, adequate sanitation facilities, reliable information, and supportive environments required for safe menstrual management (Hennegan et al., 2019). Unlike general poverty, menstrual poverty represents a specific form of inequality where economic limitations, social norms, and inadequate infrastructure collectively restrict women's ability to manage menstruation safely and comfortably. A major contributor to menstrual poverty is the unaffordability and limited availability of menstrual products, particularly among low-income households and marginalized communities. Many girls and women are forced to use unsafe or unhygienic alternatives due to financial constraints, which may compromise their health and dignity (UNICEF, 2019). In addition, inadequate access to private toilets, clean water, and waste disposal facilities further intensifies menstrual challenges, particularly in rural and resource-limited settings (World Bank, 2018). Beyond material deprivation, menstrual poverty is reinforced by cultural stigma, misinformation, and restrictive social practices surrounding menstruation. These barriers prevent open communication, reduce awareness, and contribute to gender-based inequalities. Therefore, menstrual poverty is increasingly viewed not only as a health concern but also as an issue related to human rights, education, gender equality, and sustainable development (United Nations Population Fund [UNFPA], 2022). Menstrual poverty has significant implications for girls' education and empowerment. Lack of access to menstrual products and supportive school environments can result in school absenteeism, reduced classroom participation, and decreased academic engagement. Many adolescent girls miss school during menstruation due to fear of leakage, embarrassment, inadequate sanitation facilities, or inability to afford menstrual products (Sommer et al., 2015). Repeated absence may negatively influence academic performance and increase the risk of school dropout, particularly among girls from disadvantaged backgrounds (Montgomery et al., 2016). The effects of menstrual poverty extend beyond education and influence girls' psychological and social empowerment. Menstrual stigma and inadequate menstrual knowledge can reduce self-confidence, restrict participation in social activities, and reinforce feelings of shame and isolation. When girls lack access to menstrual education and resources, their ability to make informed decisions regarding their health and well-being becomes limited (Hennegan et al., 2019). Education, economic independence, and social participation are important components of women's empowerment. Therefore, addressing menstrual poverty is essential for promoting gender equality and enabling girls to achieve their full educational and socioeconomic potential. Improved menstrual health support can enhance school retention, increase confidence, and contribute to broader empowerment outcomes (UNICEF, 2019).

Objectives of the Review

This review aims to provide a comprehensive understanding of menstrual poverty and its influence on adolescent girls' education and empowerment. The specific objectives are:

- To understand the causes, dimensions, and determinants of menstrual poverty among adolescent girls and women.
- To examine the impact of menstrual poverty on girls' educational participation, school attendance, and learning outcomes.

- To evaluate the physical health, psychological, and social consequences associated with inadequate menstrual hygiene management.
- To explore the relationship between menstrual health, gender equality, and women's empowerment.
- To review existing interventions, policies, and sustainable strategies aimed at reducing menstrual poverty and improving menstrual health outcomes.
- To identify research gaps and suggest future directions for achieving menstrual equity and empowering girls and women.

METHODOLOGY OF LITERATURE REVIEW

This review employed a systematic literature review (SLR) approach to analyze existing evidence on menstrual poverty and its influence on girls' education and empowerment. A systematic review provides a structured, transparent, and reproducible method for collecting, evaluating, and synthesizing published research, thereby improving the reliability and validity of findings (Snyder, 2019). The review process was guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) framework, which provides standardized procedures for literature identification, screening, eligibility assessment, and final study selection (Page et al., 2021). A comprehensive literature search was conducted using major academic databases, including Scopus, Web of Science, PubMed, ScienceDirect, and Google Scholar, to identify relevant studies related to menstrual poverty, menstrual hygiene management, adolescent health, education, and women empowerment. These databases were selected due to their wide coverage of peer-reviewed research in public health, social sciences, gender studies, and education. The search strategy involved the use of specific keywords and Boolean operators (AND/OR) to retrieve relevant studies. The major keywords included "menstrual poverty," "menstrual hygiene management," "adolescent girls," "menstrual health education," "gender equality," "girls' education," "women empowerment," and "sanitation and hygiene." Different combinations of these terms were used to identify studies exploring the relationship between menstrual health challenges, educational barriers, and empowerment outcomes. Additionally, reference lists of selected articles were manually screened to identify further relevant studies (Tranfield et al., 2003). To maintain the quality and relevance of the literature, predefined inclusion and exclusion criteria were applied. Studies included in the review consisted of peer-reviewed journal articles published between 2000 and 2025, written in English, and focused on adolescent girls, women, menstrual health management, education, and empowerment. Research examining access to menstrual products, sanitation facilities, menstrual awareness, social stigma, school participation, and health consequences was considered eligible. Studies were excluded if they were duplicate records, non-peer-reviewed sources, unrelated to menstrual health outcomes, focused exclusively on clinical aspects without social implications, or lacked sufficient methodological details. The study selection process followed the four stages of the PRISMA framework: identification, screening, eligibility assessment, and final inclusion (Page et al., 2021). Initially, relevant studies were identified from different databases, followed by removal of duplicate records. Titles and abstracts were screened to eliminate unrelated studies, and the full texts of potentially relevant articles were assessed according to predefined criteria. Finally, studies meeting the objectives of the review were selected for detailed analysis. The extracted information from selected studies included research objectives, geographical location, study population, methodology, major findings, challenges, and intervention strategies. A qualitative thematic synthesis approach was used to identify major themes, research trends, existing gaps, and future directions related to menstrual poverty, educational barriers, and women's empowerment (Thomas & Harden, 2008). This systematic methodology ensured a comprehensive and evidence-based understanding of menstrual poverty and its broader implications for adolescent girls' health, education, and social development.

CONCEPTUAL UNDERSTANDING OF MENSTRUAL POVERTY

Menstrual poverty is a multidimensional social, health, and gender equality issue that refers to the lack of access to affordable menstrual products, adequate sanitation facilities, accurate information, and supportive environments required for safe and dignified menstrual management (Hennegan et al., 2019). It affects millions of adolescent girls and women, particularly in low-income and marginalized communities, where economic limitations, poor infrastructure, and social stigma create barriers to effective menstrual hygiene practices (UNICEF, 2019). Menstrual poverty can be understood through three interconnected dimensions: material, infrastructure, and knowledge dimensions, which

collectively influence menstrual health, education, and empowerment outcomes. The material dimension refers to limited access to safe, affordable, and appropriate menstrual products. Many girls and women face difficulties in purchasing sanitary products due to financial constraints, high costs, and inadequate availability. As a result, some individuals depend on unhygienic alternatives, which may increase discomfort, health risks, and psychological stress (Sommer et al., 2015). The economic burden of menstrual products can also force families to prioritize other essential needs, affecting girls' school attendance and participation (Hennegan et al., 2019). The infrastructure dimension includes access to clean water, sanitation facilities, privacy, and proper disposal systems necessary for effective menstrual hygiene management. In many schools and rural communities, inadequate toilets, lack of water availability, and poor waste disposal facilities create significant challenges for adolescent girls. These conditions may contribute to absenteeism, reduced participation in educational activities, and poor menstrual experiences (UNICEF, 2019). Therefore, improving water, sanitation, and hygiene (WASH) facilities is essential for reducing menstrual barriers. The knowledge dimension highlights the role of awareness, education, and accurate information in menstrual health management. Limited knowledge, cultural myths, and social stigma often prevent girls from understanding menstruation and adopting healthy practices. Negative social attitudes may create feelings of shame and restrict open communication about menstrual concerns (Hennegan et al., 2019). Comprehensive menstrual health education through schools, families, and community programs can improve awareness, challenge misconceptions, and promote confidence among girls. Overall, menstrual poverty results from the combined effects of inadequate resources, poor infrastructure, and knowledge gaps. Addressing these dimensions through education, affordable products, improved sanitation, and supportive policies is essential for achieving menstrual equity and empowering girls and women.

DETERMINANTS AND CAUSES OF MENSTRUAL POVERTY

Menstrual poverty is influenced by multiple interconnected economic, social, educational, and environmental factors that limit girls' and women's ability to manage menstruation safely and with dignity. These determinants are particularly significant in low- and middle-income countries, where poverty, gender inequality, inadequate infrastructure, and limited awareness create persistent barriers to effective menstrual hygiene management (Hennegan et al., 2019). Understanding these underlying causes is essential for developing effective interventions that address menstrual challenges beyond the availability of menstrual products.

- **Economic Determinants;** Economic limitations are among the primary causes of menstrual poverty. Many girls and women from low-income households experience difficulty accessing affordable menstrual products due to financial constraints. The recurring cost of sanitary pads, tampons, menstrual cups, and other hygiene materials can create a significant economic burden, particularly for families struggling to meet basic needs such as food, healthcare, and education (UNICEF, 2019). In resource-limited settings, high product costs and limited market availability often force women and adolescent girls to use less safe alternatives, which may negatively affect their health and comfort. Economic inequality further intensifies menstrual challenges, as girls from disadvantaged households may have fewer opportunities to access quality menstrual products, health information, and supportive facilities. This financial burden can contribute to school absenteeism, reduced participation, and increased vulnerability among adolescent girls (Hennegan et al., 2019).
- **Social and Cultural Determinants;** Social and cultural beliefs significantly influence menstrual experiences and contribute to menstrual poverty. Menstruation is often surrounded by stigma, myths, and misconceptions that portray it as a shameful or impure process. These negative attitudes discourage open communication and prevent girls from seeking accurate information about menstrual health (Sommer et al., 2015). In many communities, traditional restrictions limit girls' participation in daily activities during menstruation, including religious practices, food preparation, social gatherings, and mobility. Such restrictions reinforce gender inequalities and negatively affect girls' confidence and psychological well-being. Lack of discussion about menstruation within families and communities further increases misinformation and prevents adolescent girls from receiving adequate guidance and support.

- **Educational Determinants;** Limited menstrual education is another major contributor to menstrual poverty. Many adolescent girls begin menstruation without adequate knowledge about menstrual biology, hygiene practices, and available management options. Insufficient awareness can create fear, confusion, and anxiety, particularly during the first menstrual experience (Sommer et al., 2015). Schools play an important role in providing menstrual health education; however, many educational institutions lack comprehensive menstrual awareness programs, trained teachers, and supportive environments. The absence of menstrual education may reduce girls' confidence, increase stigma, and negatively influence school attendance and academic participation. Integrating menstrual health education into school curricula can improve knowledge, reduce misconceptions, and empower girls to manage menstruation effectively.
- **Environmental and Infrastructure Challenges;** Environmental and infrastructural limitations are major barriers to proper menstrual hygiene management. Access to clean water, private sanitation facilities, and safe disposal systems is essential for maintaining menstrual health. However, many schools and communities, particularly in rural and low-resource areas, lack adequate toilets, water facilities, and waste management systems (World Bank, 2018). Poor sanitation conditions can create difficulties in changing and disposing of menstrual materials safely, leading to discomfort, embarrassment, and reduced participation in educational and social activities. Additionally, improper disposal of disposable menstrual products contributes to environmental pollution and waste management challenges. Sustainable solutions, including improved WASH infrastructure, environmentally friendly menstrual products, and proper disposal mechanisms, are necessary to address both health and environmental concerns.

Menstrual poverty results from the combined effects of economic inequality, social stigma, limited education, and inadequate infrastructure. Addressing these determinants requires a multidimensional approach involving affordable menstrual products, awareness programs, supportive policies, improved sanitation facilities, and community participation to ensure menstrual equity and empowerment.

CONSEQUENCES OF MENSTRUAL POVERTY ON GIRLS' EDUCATION

Menstrual poverty has significant implications for girls' educational participation, academic achievement, and long-term empowerment. Limited access to affordable menstrual products, inadequate sanitation facilities, insufficient menstrual knowledge, and social stigma create multiple barriers that prevent adolescent girls from attending school regularly and participating effectively in educational activities. Since education plays a vital role in personal development, economic independence, and social empowerment, menstrual poverty can reinforce existing gender inequalities and restrict girls' future opportunities (Hennegan et al., 2019). One of the most immediate consequences of menstrual poverty is reduced school attendance and participation. Many adolescent girls miss school during menstruation due to difficulties in accessing menstrual products, fear of leakage, lack of privacy, and inadequate sanitation facilities. In communities where menstruation is associated with shame and stigma, girls may experience embarrassment, anxiety, and discomfort, leading to repeated absenteeism (Sommer et al., 2015). Frequent absence during menstruation results in missed classroom lessons, incomplete assignments, and reduced participation in academic and extracurricular activities such as sports, practical sessions, and group discussions. Over time, these interruptions can negatively affect girls' confidence, sense of belonging, and overall educational experience. Providing menstrual-friendly school environments with clean toilets, water facilities, disposal systems, and menstrual health education can significantly improve girls' attendance and participation (UNICEF, 2019). Menstrual poverty also affects academic performance by influencing girls' concentration, emotional well-being, and learning opportunities. Inadequate menstrual management may cause physical discomfort, stress, fear of embarrassment, and psychological challenges, which can reduce the ability to focus during classroom activities (Hennegan et al., 2019). Girls who lack access to menstrual products may spend valuable learning time managing menstrual challenges rather than concentrating on lessons. Furthermore, repeated absenteeism creates educational gaps that may negatively affect examination performance and overall academic outcomes. Social stigma and lack of supportive environments can further reduce self-confidence, limiting girls' willingness to participate in discussions or seek academic assistance. The long-term effects of menstrual poverty extend beyond immediate educational challenges and influence girls' future socioeconomic development. Persistent absenteeism, reduced academic

performance, and limited school participation may increase the risk of school dropout, particularly among girls from economically disadvantaged backgrounds (Sommer et al., 2015). Early dropout reduces access to higher education, skill development, and employment opportunities, resulting in lower earning potential and reduced economic independence. This contributes to the continuation of gender-based inequalities and limits women's participation in social and economic development. Menstrual poverty creates significant educational barriers by affecting school attendance, academic performance, and future career opportunities. Addressing this issue requires integrated interventions, including affordable menstrual products, comprehensive menstrual health education, improved sanitation facilities, supportive school policies, and community awareness programs. Ensuring menstrual equity is essential for promoting girls' education, empowerment, and equal participation in society.

HEALTH AND PSYCHOLOGICAL IMPACTS OF MENSTRUAL POVERTY

Menstrual poverty has wide-ranging effects on the physical health, psychological well-being, and social participation of adolescent girls and women. The inability to access safe menstrual products, adequate sanitation facilities, accurate information, and supportive environments can negatively influence menstrual hygiene practices and overall quality of life. Beyond being a hygiene issue, menstrual poverty represents a broader public health and gender equality challenge because it affects dignity, confidence, education, and social inclusion (Hennegan et al., 2019). The consequences of menstrual poverty can be broadly categorized into physical health, mental health, and social impacts.

- **Physical Health Consequences;** One of the major health consequences of menstrual poverty is the adoption of poor menstrual hygiene practices. When girls and women cannot afford appropriate menstrual products or lack access to clean water and sanitation facilities, they may use unsafe alternatives or delay changing menstrual materials, increasing the risk of discomfort and infections (UNICEF, 2019). Limited access to hygienic menstrual management resources can contribute to poor personal hygiene practices and negatively affect reproductive health outcomes. Inadequate menstrual hygiene may increase the risk of skin irritation, rashes, and discomfort due to prolonged use of unsuitable materials or poor disposal practices. In some cases, unhygienic menstrual practices may contribute to reproductive and urinary tract infections, particularly when combined with inadequate sanitation and limited health awareness (Sommer et al., 2015). Furthermore, lack of menstrual health education prevents many girls from understanding normal menstrual processes, identifying health concerns, and seeking appropriate healthcare support. Improving access to affordable menstrual products, clean water, sanitation facilities, and accurate health information is therefore essential for reducing physical health risks associated with menstrual poverty.
- **Mental Health Consequences;** Menstrual poverty also has significant psychological impacts on girls and women. Lack of access to menstrual products, fear of leakage, social stigma, and inadequate knowledge about menstruation often create feelings of anxiety, embarrassment, and shame. Many adolescent girls experience stress during menstruation because they fear being judged, teased, or socially excluded, particularly in school environments (Hennegan et al., 2019). Negative cultural beliefs and limited communication about menstruation can reinforce feelings of discomfort and insecurity. When menstruation is treated as a taboo subject, girls may hesitate to seek information, discuss menstrual concerns, or request support from family members and teachers. This lack of support can reduce self-confidence and negatively influence emotional well-being (Sommer et al., 2015). Repeated experiences of stigma and menstrual-related challenges may affect girls' self-esteem and sense of empowerment. Creating supportive environments through menstrual education, awareness programs, and open discussions can help reduce stigma and improve psychological well-being.
- **Social Consequences;** Menstrual poverty can also restrict girls' social participation and contribute to social exclusion. In many communities, cultural norms and misconceptions about menstruation impose restrictions on girls' mobility, participation in religious activities, household responsibilities, and social interactions. Such practices reinforce gender inequalities and limit girls' freedom and participation in community life (UNICEF, 2019). Fear of menstrual leakage, lack of

privacy, and inadequate facilities may discourage girls from attending school, participating in sports, or engaging in social activities during menstruation. These restrictions can reduce opportunities for social development, confidence building, and peer interaction. Additionally, menstrual stigma can create feelings of isolation and discrimination, preventing girls from openly discussing their needs and seeking support. Addressing these social barriers requires community awareness, gender-sensitive education, and policies that promote menstrual dignity and equality.

Menstrual poverty affects girls and women at multiple levels by creating physical health risks, psychological stress, and social limitations. Comprehensive menstrual health interventions that combine affordable products, improved sanitation, education, and stigma reduction strategies are essential for protecting health, promoting dignity, and supporting the empowerment of girls and women.

MENSTRUAL POVERTY AND WOMEN EMPOWERMENT

Menstrual poverty is a significant barrier to women's empowerment as it affects their personal confidence, social participation, and economic opportunities. Limited access to menstrual products, inadequate sanitation facilities, lack of awareness, and social stigma create challenges that restrict girls' and women's ability to participate fully in education, society, and economic activities. Therefore, menstrual poverty should be recognized not only as a health issue but also as a gender equality and empowerment concern (Hennegan et al., 2019). At the personal level, menstrual poverty affects girls' confidence, self-esteem, and decision-making ability. Inadequate menstrual resources and limited knowledge about menstrual health often create feelings of shame, embarrassment, and insecurity. Social taboos surrounding menstruation may prevent girls from openly discussing their concerns or seeking appropriate support. Lack of accurate information also limits their ability to make informed decisions regarding menstrual hygiene practices and overall health management (Sommer et al., 2015). Providing menstrual health education and creating supportive environments can enhance girls' confidence, awareness, and personal empowerment. At the social level, menstrual poverty reduces girls' participation in education and community activities. Fear of stigma, lack of privacy, and cultural restrictions may lead to school absenteeism and reduced involvement in social interactions. These limitations affect opportunities for learning, communication, and leadership development. Furthermore, negative perceptions of menstruation reinforce gender inequalities by restricting girls' freedom and participation in society (UNICEF, 2019). Promoting menstrual awareness and eliminating stigma are essential steps toward achieving social inclusion and gender equality. At the economic level, menstrual poverty influences women's long-term economic empowerment by limiting educational achievement, skill development, and employment opportunities. Girls who experience repeated educational disruptions may have reduced access to higher education and vocational training, which can affect their future career prospects and financial independence (Hennegan et al., 2019). Improving menstrual health support through affordable products, education, and inclusive policies can strengthen women's participation in economic activities and improve their socioeconomic status. Menstrual poverty negatively influences multiple dimensions of empowerment by limiting confidence, participation, and economic independence. Addressing menstrual poverty through education, improved facilities, affordable menstrual products, and supportive policies is essential for promoting gender equality and empowering girls and women to achieve their full potential.

SUSTAINABLE APPROACHES TO ADDRESS MENSTRUAL POVERTY

Menstrual poverty requires a multidimensional approach that focuses on improving awareness, accessibility, infrastructure, and policy support. Sustainable interventions can enhance menstrual health, reduce stigma, improve girls' educational participation, and promote women's empowerment (Hennegan et al., 2019).

- **Menstrual Health Education;** Menstrual health education plays an important role in reducing myths, stigma, and lack of awareness. School-based awareness programs help adolescent girls understand menstrual hygiene practices, while teacher training ensures supportive guidance. Community education programs further promote positive attitudes and improve menstrual awareness among families and society (Sommer et al., 2015).
- **Affordable and Sustainable Menstrual Products;** Access to affordable and safe menstrual products is essential for reducing menstrual poverty. Low-cost sanitary products, reusable pads,

menstrual cups, and biodegradable products provide economical and environmentally sustainable options. Improved availability of menstrual materials enables girls and women to manage menstruation safely and with dignity (UNICEF, 2019).

- **Improving WASH Facilities (Water, Sanitation and Hygiene);** Adequate WASH facilities are necessary for effective menstrual hygiene management. Safe school toilets, clean water availability, privacy, and proper waste disposal systems help create menstrual-friendly environments. Improved sanitation facilities can reduce barriers to school attendance and enhance girls' comfort and participation (World Bank, 2018).
- **Policy and Institutional Interventions;** Strong policies and institutional support are essential for achieving menstrual equity. Free or subsidized menstrual product programs, inclusion of menstrual health in public policies, and awareness campaigns can reduce inequalities and improve access to menstrual resources. Collaboration among governments, schools, healthcare institutions, and communities is important for sustainable menstrual health management.

Overall, addressing menstrual poverty requires combined efforts in education, product accessibility, sanitation improvement, and policy implementation. These approaches can promote menstrual dignity, improve educational outcomes, and support the empowerment of girls and women.

REGIONAL AND SOCIOECONOMIC PERSPECTIVES

Region/Context	Major Challenges	Key Solutions/Interventions
Developing Countries	Poverty and high cost of menstrual products, Limited sanitation and water facilities, Lack of menstrual awareness, social stigma	Menstrual health education, Affordable/free menstrual products, Improved WASH facilities, Community awareness programs
Developed Countries	Menstrual product affordability issues, Taxation barriers, Inequality in access, Need for menstrual equity	Removal of menstrual taxes, Free product schemes, Policy reforms, Equity-based initiatives
South Asia	Cost barriers, Cultural stigma, Poor sanitation facilities	Awareness programs, School-based menstrual education, Affordable product distribution
Africa	Limited product availability, Poverty-related barriers, Inadequate infrastructure	Community interventions, Local product initiatives, Improved sanitation facilities
Developed Regions	Affordability and accessibility issues, Period poverty among vulnerable groups	Menstrual equity policies, public awareness campaigns, Institutional support

RESEARCH GAPS AND FUTURE PERSPECTIVES

Although menstrual health and hygiene have received increasing global attention, several research gaps remain in understanding and addressing menstrual poverty. Existing studies have highlighted its impacts on health, education, and empowerment; however, more comprehensive and long-term research is required to develop effective and sustainable solutions (Hennegan et al., 2019). Current evidence is limited due to the lack of longitudinal studies that examine the long-term effects of menstrual poverty on girls' education, psychological well-being, employment opportunities, and women's empowerment. Most available studies focus on short-term outcomes, creating a need for continuous monitoring and life-course research (Sommer et al., 2015). Additionally, there is insufficient rural-based evidence, particularly from marginalized communities where poverty, poor sanitation infrastructure, and cultural restrictions create greater barriers to menstrual health management (UNICEF, 2019). Research on sustainable menstrual products such as reusable pads, menstrual cups, and biodegradable products is also limited. Further studies are needed to evaluate their affordability, acceptance, environmental

benefits, and suitability across different socioeconomic groups. Moreover, although several governments have introduced menstrual health programs and free product distribution schemes, the effectiveness of these interventions remains insufficiently evaluated. Future research should assess program implementation, accessibility, behavioral outcomes, and long-term impacts on education and empowerment. Future research should focus on digital menstrual health education through mobile applications, online platforms, and digital awareness campaigns to improve access to reliable menstrual information. Technology-based awareness programs can help reduce stigma and promote positive menstrual practices, especially among adolescents in remote areas. Research should also explore innovative and sustainable menstrual products that are affordable, environmentally friendly, and culturally acceptable.

Furthermore, behaviour change research is essential to understand how social norms, cultural beliefs, and community attitudes influence menstrual practices. Evidence from such studies can support the development of effective awareness programs and stigma reduction strategies. Finally, gender-responsive policies integrating menstrual health into education, healthcare, and equality frameworks are necessary to ensure menstrual dignity and empowerment for girls and women (UNICEF, 2019). future research should adopt interdisciplinary approaches combining health, education, technology, social science, and policy perspectives to develop sustainable strategies for eliminating menstrual poverty and promoting gender equality.

POLICY RECOMMENDATIONS

Addressing menstrual poverty requires comprehensive policy interventions that focus on improving access, awareness, infrastructure, and social support systems. Since menstrual poverty affects health, education, and women's empowerment, policies should adopt a multidimensional approach to ensure menstrual equity and dignity for all girls and women. Ensuring affordable and accessible menstrual products should be a key policy priority. Governments and institutions should promote free or subsidized menstrual products, especially for students and economically disadvantaged groups, to reduce financial barriers and improve menstrual hygiene management. Encouraging the availability of sustainable alternatives, such as reusable and environmentally friendly products, can further support long-term menstrual health solutions. Menstrual health education should be integrated into school curricula to provide accurate information about menstruation, hygiene practices, and reproductive health. Training teachers and creating supportive school environments can reduce stigma, improve confidence, and encourage girls' participation in education. Community-based awareness programs should also be promoted to address misconceptions and cultural taboos related to menstruation. Improving sanitation and WASH (Water, Sanitation, and Hygiene) facilities is essential for safe menstrual management. Schools and public institutions should provide clean toilets, adequate water supply, privacy, and proper waste disposal systems to create menstrual-friendly environments. Policies should also promote sustainable menstrual practices by encouraging the use of eco-friendly menstrual products and improving waste management systems. In addition, increasing community participation through involvement of parents, community leaders, healthcare workers, and local organizations can help reduce stigma and support positive behavioral changes. Strengthening women's health programs by integrating menstrual health into broader reproductive health and gender equality initiatives can improve access to healthcare services, information, and support. Collaborative efforts among governments, educational institutions, healthcare systems, and communities are essential for achieving menstrual equity and empowering girls and women.

CONCLUSION

Menstrual poverty is not only a health and hygiene challenge but also a significant issue of educational inequality, social exclusion, and gender discrimination. Lack of access to affordable menstrual products, proper sanitation facilities, and accurate menstrual health information negatively affects girls' dignity, confidence, educational participation, and overall empowerment. The consequences of menstrual poverty extend beyond menstruation itself, influencing school attendance, academic performance, psychological well-being, social participation, and future economic opportunities. Girls experiencing menstrual-related barriers often face stigma, reduced confidence, and limited opportunities for personal and professional development. Addressing menstrual poverty requires an integrated and sustainable

approach that combines menstrual health education, improved healthcare services, affordable and environmentally sustainable products, adequate sanitation facilities, and supportive policy frameworks. Creating awareness among communities and reducing cultural stigma are equally important for ensuring menstrual dignity and equality. Effective collaboration among governments, schools, healthcare institutions, non-governmental organizations, and communities is essential to develop long-term solutions. By promoting menstrual equity and inclusive policies, societies can remove barriers that prevent girls and women from achieving their full educational, social, and economic potential. Ensuring proper menstrual health management is therefore a critical step toward improving gender equality, empowerment, and sustainable development.

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