**Analysis**

**Adolescent menstrual health must go beyond pads**

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| **KEY MESSAGES**   * Investment in menstrual health in low resource contexts is increasingly recognised as a pathway to addressing gender inequality and a range of social challenges for school aged girls. * Inadequate data capturing the state of menstrual health across these countries renders women and girls’ multi-dimensional needs invisible, hinders meaningful action, and concentrates media, donor, government and implementer focus on one component, that of the role of menstrual pads. * The data gap drives responses for a ‘quick fix’ tangible, easily measurable solution which too often is the mass provision of menstrual pads, with some (though limited) education on menstrual hygiene. * Improved evidence, derived from well-resourced research and evaluation of interventions, would in turn support budget allocation and programming, and expand the design of improved and more comprehensive interventions. |

**Contributors and sources**

MS has been conducting research on menstrual health globally for over 20 years and led on the conceptualization and drafting of the manuscript. All co-authors (AM, JH, CK, TM, PPH) contributed to the conceptualization, and provided extensive edits to the manuscript. AM and TM also contribute menstrual health programming and advocacy experience in menstrual health, while JH, CK and PPH have all conducted extensive observational and/or interventional research on menstrual health globally (East Africa, Asia, Pacific, UK and Australia). MS, TM, JH, and PPH are members of the Global Menstrual Health & Hygiene (MHH) Monitoring group developing and supporting implementation of priority indicators for national governments.

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No patients were involved.

**Conflicts of Interest**

We have read and understood [BMJ policy on declaration of interests](http://static.www.bmj.com/sites/default/files/attachments/resources/2011/07/bmjpolicyondeclarationofinterestsmarch2014.pdf) and have no competing interests to declare.

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**Standfirst**

*Marni Sommer and colleagues argue that adolescent menstrual health must move beyond the provision of menstrual pads as a silver bullet, and be addressed as a public health priority crossing multiple sectors to achieve significant benefits for population health and wellbeing.*

Menstruation and the menstrual cycle are important aspects of female health and wellbeing across the lifespan from menarche, the first menstrual period, to menopause (1–3). Adolescent girls and women worldwide consistently report negative experiences with menstruation, including missed or delayed diagnosis of menstrual disorders. These issues have far-reaching consequences for their wellbeing, education, livelihood opportunities, empowerment, and overall health (4–6). In response, investment in menstrual health (see Box 1) during adolescence is increasingly recognised as a pathway to mitigate these consequences and address gender inequality. This was emphasized in 2022 when the World Health Organization declared menstrual health as a health and human rights issue and not solely a hygiene issue (7). The emerging concept of menstrual justice highlights how harmful power structures and social norms result in menstrual related discrimination in many spheres of life that impede menstrual health (8).

Despite increased attention, data on adolescent girls’ menstrual health is insufficient across countries. The absence of data on girls’ multidimensional requirements for menstrual health renders these challenges invisible. For this and likely other reasons, the media, donors, governments, and implementers have concentrated on menstrual pads as a ‘quick fix’, tangible, and easily measurable solution. Competing health and human rights priorities with stronger and more well-established links to female morbidity and mortality also limit the funding available to expand the evidence base on menstrual health. Better data from well-resourced rigorous research would serve to inform the development of more comprehensive, impactful, and cost-effective interventions (9). Current gaps must be addressed by increasing the visibility of menstrual health in monitoring efforts, research, and the development and implementation of contextually grounded interventions (10). This in turn would enable a move away from a narrow focus on the provision of pads to address the complexity of adolescent girls’ menstrual health needs.

In this analysis, we focus on adolescent girls due to the unique needs and critical importance of investing in this age group, with an emphasis on low resource settings, though the insights have global relevance. Although not discussed here, women and others who menstruate are important to consider in a broader menstrual health agenda. We also focus on menstrual pads rather than other products (e.g., cups, panties) because single-use pads are the most commonly provided menstrual material in government, donor, and programmatic initiatives targeting girls.

**Box 1: The main components of menstrual health** (11)

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| Menstrual health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity, in relation to the menstrual cycle. Achieving menstrual health implies that women, girls, and all other people who experience a menstrual cycle, throughout their life-course, are able to:   * access accurate, timely, age-appropriate information …; * care for their bodies during menstruation…including access to water and sanitation facilities and menstrual materials * access timely diagnosis, treatment and care for menstrual cycle-related discomforts and disorders … * experience a positive and respectful environment… * decide whether and how to participate in all spheres of life …during all phases of the menstrual cycle… |

**Menstrual health can lay the foundation for other health and wellbeing priorities for girls, but investment in building the evidence is scarce**

A major barrier to increasing global and national investment in menstrual health beyond pads is the argument that limited resources should be prioritised for social challenges and interventions that have stronger evidence for reducing girls’ morbidity and mortality. For example, risks such as gender-based violence, early and unintended pregnancy, infection with HIV and AIDS, and cervical cancer in the absence of the HPV vaccine highlight the pressing needs that compete for attention and funding. However, these issues have important fundamental links to menstrual health. The menstrual cycle represents foundational knowledge to understand fertility and sexual and reproductive health, while the identification of abnormal bleeding in the context of cervical cancer requires an understanding of normal bleeding and willingness to engage health care providers for menstrual concerns (3). A recent study analysing a cohort of girls in Ghana suggested that the onset of menstruation increased girls’ vulnerability to sexual violence, with menarche indicating sexual or marital readiness (12). Related research in Kenya suggests that to afford menstrual pads, early adolescent girls may engage in transactional sex (13), contributing to negative sexual and reproductive health outcomes. Focused investments on these menstrual health associations (14), and how to intervene effectively on them, have been initiated (e.g., through UK Research and Innovation (15,16)), with commitment from multiple other funders, such as the Bill & Melinda Gates Foundation, interested to support building the evidence. This research, under trial conditions, found provision of menstrual cups maintained a healthy vaginal microbiome, reduced bacterial vaginosis, and transmission of sexually transmitted infections (15–17).

Overall, there exists a gap in evidence demonstrating links between menstrual health and health and economic outcomes. Although such linkages have been shown in other areas of investment for girls, there has been limited appetite to finance menstrual health research on these linkages or the development of varied intervention approaches. As a result, resources are narrowly focused on menstrual pad programmes, often with the stated aim of reducing school absenteeism. However, absenteeism is not a priority indicator in the global gender and education agenda, and may also have limited impact without menstrual health education, adequate menstrual-friendly toilets in schools, and supportive teachers.

**A narrow focus offers limited support for adolescent girls**

Of the many components essential for achieving menstrual health, the narrow focus on menstrual pads has persisted likely because products are tangible, easily measurable, and messaging is simple. Recent tracking of menstrual health and hygiene (MHH) funding suggests that 30 out of 31 investments of at least $1 million USD focused on provision of products, along with 27 out of 28 government efforts (18). Yet pad programmes raise numerous issues around sustainable provision over time, logistical challenges, girls’ right to make informed choices about the products they use, and disposal and waste management (19). A focus on pads is frequently shored up by media and advocacy campaigns, and demonstrations of ‘action’ when government ‘pad programmes’ are launched. While pad programmes can raise awareness about menstrual health and menstrual stigma, channelling limited resources towards the provision and distribution of pads ignores the potential for greater impact of structural interventions addressing the broader components of menstrual health, leading to sustained improvements throughout the life course, from menarche to menopause.

**Improved monitoring and measurement can broaden the frame**

Inadequate measurement of menstrual health has also limited attending to a broader array of investments that could impact adolescent girl’s health and wellbeing. To date, most research on menstrual health has been descriptive, providing important insights on the status of menstrual health in terms of levels of awareness, health practices, and attitudes (5,20). Much of the intervention and programme reporting has also focused on outputs – the number of menstrual pads distributed, and/or the number of girls reached through educational sessions. While such studies and assessments enhance our understanding of the nature, scale and complexity of the issue, we lack nationally representative data on key components of menstrual health. This data is essential to recognise the breadth of menstrual health needs, for tracking of progress over time, and for informing the development and adaptation of relevant policies and programmes.

Governments and donors may perceive that the impact of menstrual health is most easily measured and demonstrated through the tangible provision of menstrual products. This belief feeds into accountability systems that suggest ‘the issue has been resolved once pads are issued’, thereby neglecting other essential components of menstrual health. The consequence of this mindset is far-reaching, hindering research into the many facets of menstruation, and preventing the development of national, institutional, and individual-level data needed to assess impact over time (21).

A newly launched set of global indicators for national level monitoring of MHH for adolescent girls can promote measurement beyond product access, and lead to improved health and education outcomes (21). These indicators cover multiple sectors and draw from existing data collection efforts, including the Joint Monitoring Program on water and sanitation in schools and relevant questions from Demographic and Health Surveys (DHS). A new menstrual health module aligned with the MHH indicators, that can be incorporated in the Multiple Indicator Cluster Surveys and the DHS can provide comparable data across countries in the short-term, facilitating action while reducing data collection burdens. Future efforts may also explore incorporating menstrual health issues, such as menstrual pain, into assessments of Quality Adjusted Life Years (QALYs).

While this initial list of indicators begins to tackle gaps in understanding the benefits of investing in menstrual health, a broader range of indicators is needed to build a robust evidence base. Linking these measures to evidence of their association with broader health and social outcomes could yield further insight and spur investment. Additionally, they would broaden attention to diverse domains and interventions needed to improve menstrual health related health, education, social and economic outcomes.

**Pathways to menstrual health and equity for girls**

Despite compelling arguments for the importance menstrual health – from the WHO’s 2022 declaration on menstrual health (7) to the potential impacts of more well-resourced menstrual health initiatives (22) – economic and political resources and commitment remain sporadic and limited. Commitment must expand to holistically address the issue menstrual health, integrating it into different sectors as a potential pathway for improved population health outcomes.

In relation to health outcomes, investing in menstrual health programming and research has the potential to alter girls’ sexual and reproductive health trajectories and empowerment. Menarche in early adolescence is a critical developmental window for young people, and offers multiple opportunities to build foundational knowledge about sexual and reproductive health, enhance body literacy, and improve health care seeking behaviours throughout life (2,3). Improving the skills of health workers to support the prevention and treatment of menstrual disorders is also critical. For example, early identification and care for heavy menstrual bleeding can alleviate issues such as anaemia and menstrual-related disorders, improving quality of life, and potentially reducing risks of infertility and certain cancers (23).

Also, increased investment in menstrual health research could address associations between menstruation and negative mental health outcomes, such as depression linked to early menarche, and improve long-term health and wellbeing (14,24). Investment would also contribute to improved vaginal health and lower the risks of reproductive tract and sexually transmitted infections, which although the data is limited, have been associated with inadequate hygiene and vaginal practices (25).

In education settings, it is essential to invest in menstrual-friendly water and sanitation facilities, train and sensitize teachers and peers, and provide menstrual health education incorporated into curricula and community outreach programmes, that includes practical information and options for menstrual products, pain relief and health care support for girls in and out of school. Pain relief should also include connections to health care workers to address symptoms of potential menstrual disorders. Education should include boys and men to raise awareness about menstruation and sensitise them about menstrual stigma and discrimination. For example, a study in Bangladesh demonstrated that providing a combined intervention addressing sanitation facilities, menstrual health education and support reduced school absence and dropout and improved psychosocial wellbeing . Ongoing, well-funded research is necessary to identify the most impactful and cost-effective approaches to invest in, including earlier and improved diagnosis and treatment of menstrual disorders.

Investing in menstrual health would also tackle persistent gender inequities by challenging pervasive, harmful social norms that limit girls’ mobility, educational opportunities, future workforce participation and bodily agency. The benefits of interventions in health, education and beyond, could lead to long-term benefits across a wide range of social outcomes in girls’ lives.

It's essential to move beyond merely counting menstrual pads, as past investments in HIV/AIDS and family planning have demonstrated the value of focusing on broader health outcomes and structural and environmental approaches rather than just product distribution (26,27). A comprehensive approach that includes balanced, targeted support across relevant sectors, and the integration of menstrual health into sexual and reproductive health policies to promote access to information, resources, services and products, will yield far-reaching benefits, addressing critical health issues for adolescents and women throughout their lives. Designated government leadership is vital to transition menstrual health into a domestic financing issue. Moreover, establishing accountability mechanisms to track progress across sectors, utilising quality data, including the new MHH indicators as a starting point, will substantially advance the menstrual health agenda. More consistent and long-term political and financial investment will also foster more robust research initiatives to better understand menstruation-related health issues and determine comprehensive, impactful, cost-effective interventions beyond the distribution of menstrual products.

**References**

1. Sommer M, Phillips-Howard PA, Mahon T, Zients S, Jones M, Caruso BA. Beyond menstrual hygiene: addressing vaginal bleeding throughout the life course in low and middle-income countries. BMJ Global Health. 2017 Jul 1;2(2):e000405.

2. Wilson LC, Rademacher KH, Rosenbaum J, Callahan RL, Nanda G, Fry S, et al. Seeking synergies: understanding the evidence that links menstrual health and sexual and reproductive health and rights. Sex Reprod Health Matters. 2021 Dec;29(1):1882791.

3. Hoppes E, Rademacher KH, Wilson L, Mahajan TD, Wilson K, Sommer M, et al. Strengthening Integrated Approaches for Family Planning and Menstrual Health. Global Health: Science and Practice [Internet]. 2023 [cited 2024 Feb 27];11(5). Available from: https://www.ghspjournal.org/content/11/5/e2300080

4. Barrington DJ, Robinson HJ, Wilson E, Hennegan J. Experiences of menstruation in high income countries: a systematic review, qualitative evidence synthesis and comparison to low-and middle-income countries. PLoS One. 2021;16(7):e0255001.

5. Hennegan J, Shannon AK, Rubli J, Schwab KJ, Melendez-Torres G. Women’s and girls’ experiences of menstruation in low-and middle-income countries: A systematic review and qualitative metasynthesis. PLoS medicine. 2019;16(5):e1002803.

6. Sims OT, Gupta J, Missmer SA, Aninye IO. Stigma and Endometriosis: A Brief Overview and Recommendations to Improve Psychosocial Well-Being and Diagnostic Delay. International Journal of Environmental Research and Public Health. 2021 Jan;18(15):8210.

7. WHO statement on menstrual health and rights [Internet]. World Health Organization; 2022 Jun [cited 2024 Feb 27]. Available from: https://www.who.int/news/item/22-06-2022-who-statement-on-menstrual-health-and-rights

8. Bagala L, Mahon T, Muralidharan A, Wilson E. There can be no gender equality without menstrual justice. BMJ. 2023 Sep 12;382:p2079.

9. Ellingrud K, Pérez L, Petersen A, Sartori V. Closing the women’s health gap: A $1 trillion opportunity to improve lives and economies [Internet]. McKinsey Health Institute; 2024 Jan [cited 2024 Feb 27]. Available from: https://www.mckinsey.com/mhi/our-insights/closing-the-womens-health-gap-a-1-trillion-dollar-opportunity-to-improve-lives-and-economies#/

10. Plesons M, Torondel B, Caruso BA, Hennegan J, Sommer M, Haver J, et al. Research priorities for improving menstrual health across the life-course in low- and middle-income countries. Glob Health Action. 2023 Dec 31;16(1):2279396.

11. Hennegan J, Winkler IT, Bobel C, Keiser D, Hampton J, Larsson G, et al. Menstrual health: a definition for policy, practice, and research. Sexual and Reproductive Health Matters. 2021 Jan 1;29(1):31–8.

12. Ibitoye M, Sandfort TGM, Bingenheimer JB, Sommer M. The sexual and reproductive health covariates of early menarche among adolescent girls. J Adolesc. 2024 Jun;96(4):789–802.

13. Phillips-Howard PA, Otieno G, Burmen B, Otieno F, Odongo F, Odour C, et al. Menstrual Needs and Associations with Sexual and Reproductive Risks in Rural Kenyan Females: A Cross-Sectional Behavioral Survey Linked with HIV Prevalence. J Womens Health (Larchmt). 2015 Oct 1;24(10):801–11.

14. Hennegan J, Hasan MT, Jabbar A, Jalil T, Kennedy E, Hunter E, et al. Protocol for the Adolescent Menstrual Experiences and Health Cohort (AMEHC) Study in Khulna, Bangladesh: A Prospective cohort to quantify the influence of menstrual health on adolescent girls’ health and education outcomes. BMJ Open. 2024 Apr 1;14(4):e079451.

15. Phillips-Howard PA, Nyothach E, Ter Kuile FO, Omoto J, Wang D, Zeh C, et al. Menstrual cups and sanitary pads to reduce school attrition, and sexually transmitted and reproductive tract infections: a cluster randomised controlled feasibility study in rural Western Kenya. BMJ Open. 2016 Nov 23;6(11):e013229.

16. Zulaika G, Nyothach E, Eijk AM van, Wang D, Opollo V, Obor D, et al. Menstrual cups and cash transfer to reduce sexual and reproductive harm and school dropout in adolescent schoolgirls in western Kenya: a cluster randomised controlled trial. eClinicalMedicine [Internet]. 2023 Nov 1 [cited 2024 Sep 25];65. Available from: https://www.thelancet.com/journals/eclinm/article/PIIS2589-5370(23)00438-8/fulltext

17. Mehta SD, Zulaika G, Agingu W, Nyothach E, Bhaumik R, Green SJ, et al. Analysis of bacterial vaginosis, the vaginal microbiome, and sexually transmitted infections following the provision of menstrual cups in Kenyan schools: Results of a nested study within a cluster randomized controlled trial. PLOS Medicine. 2023 Jul 25;20(7):e1004258.

18. WASH United gGmbH. MHH Funding Tracker [Internet]. [cited 2024 Oct 25]. Available from: https://www.mhh-funding-tracker.org/

19. Elledge MF, Muralidharan A, Parker A, Siddiqui M, Toolaram A, Woodward K. Menstrual Hygiene Management and Waste Disposal in Low and Middle Income Countries—A Review of the Literature. International Journal of Environmental Research and Public Health [Internet]. 2018 Nov 15 [cited 2024 Feb 27];15(11). Available from: https://www.mdpi.com/1660-4601/15/11/2562

20. Evans RL, Harris B, Onuegbu C, Griffiths F. Systematic review of educational interventions to improve the menstrual health of young adolescent girls. BMJ Open. 2022 Jun 1;12(6):e057204.

21. Hennegan J, Caruso BA, Zulaika G, Torondel B, Haver J, Phillips-Howard PA, et al. Indicators for National and Global Monitoring of Girls’ Menstrual Health and Hygiene: Development of a Priority Shortlist. J Adolesc Health. 2023 Dec;73(6):992–1001.

22. Sol L, Nillesen EE, Smeets P. Breaking Down Menstrual Barriers in Bangladesh; Cluster RCT Evidence on School Attendance and Psychosocial Outcomes of Adolescent Girls [Internet]. Rochester, NY: Social Science Research Network; 2021. Available from: https://ssrn.com/abstract=3847266

23. Wright TS, Cygan PH. Closing the Diagnostic Gap in Adolescents and Young Adult Women With Bleeding Disorders: Missed Opportunities. Obstet Gynecol. 2023 Aug 1;142(2):251–6.

24. Caruso BA, Cooper HLF, Haardörfer R, Yount KM, Routray P, Torondel B, et al. The association between women’s sanitation experiences and mental health: A cross-sectional study in Rural, Odisha India. SSM - Population Health. 2018 Aug 1;5:257–66.

25. Mehta SD, Zulaika G, Otieno FO, Nyothach E, Agingu W, Bhaumik R, et al. High Prevalence of Lactobacillus crispatus Dominated Vaginal Microbiome Among Kenyan Secondary School Girls: Negative Effects of Poor Quality Menstrual Hygiene Management and Sexual Activity. Front Cell Infect Microbiol. 2021;11:716537.

26. Parker RG, Easton D, Klein CH. Structural barriers and facilitators in HIV prevention: a review of international research. AIDS. 2000 Jun;14 Suppl 1:S22-32.

27. Slaymaker E, Scott RH, Palmer MJ, Palla L, Marston M, Gonsalves L, et al. Trends in sexual activity and demand for and use of modern contraceptive methods in 74 countries: a retrospective analysis of nationally representative surveys. The Lancet Global Health. 2020 Apr 1;8(4):e567–79.