



The Sanitation & Hygiene Fund

**Impact of Investment in Menstrual
Health and Hygiene (MHH) on
Socio-Economic Well-Being**

Research Brief - Health Impact

December 2023



About the Sanitation and Hygiene Fund

The Sanitation and Hygiene Fund (SHF) is a UN fund dedicated to achieving universal access to sanitation, hygiene and menstrual health through market-based approaches. SHF works with Low- and Middle-Income Countries (LMICs) to build robust sanitation economies and menstrual hygiene marketplaces. For more information, please visit: www.shfund.org

About This Study

This study, commissioned by the SHF to identify promising examples from research and practice on potential socio-economic returns from investing in MHH, was conducted by Population Services International (PSI)-Europe. We thank the authors **Maria Carmen Punzi** (expert in the field of MHH) and **Dr. Lidwien Sol** (expert in cost-benefit analyses and MHH), both independent consultants. We also thank Odette Hekster of PSI-Europe and Dr. Claire Rothschild of PSI for their contributions.

Note on terminology: This report refers to women and girls' experience with menstruation, but recognises that not all those who menstruate identify as women or girls, and that not all women and girls menstruate. People who menstruate include those who have MHH needs: girls, women, transgender, non-binary and intersex persons.

Note on research: The ROIs presented in this study are based on available evidence, in this case three studies. Due to this limited available evidence, these findings aim to inform about specific cases and settings, not to generalise. The findings are a first step in the direction of developing general MHH ROIs. For further details, please see the section on limitations.

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Introduction

Menstrual health and hygiene (MHH) is an important foundation for women's reproductive, sexual and general health.¹ The menstrual cycle is a predictor and indicator of health, central to hormone production, ovulation and pregnancy, and accompanies girls and women from the beginning of puberty until menopause.² Nearly two billion people worldwide menstruate, nevertheless, at least a quarter of them lack access to adequate MHH.³ For example, many girls and women do not receive appropriate education about their menstrual cycle and fertility, which contributes to a lack of body literacy, self-confidence and self-efficacy, which are essential elements to making informed decisions throughout one's sexual and reproductive health life.



Ms. Mudu Omari packs condoms at the PSI warehouse in Dar es Salaam. Dar es Salaam, Tanzania. May, 2010.
©Jake Lyell Photography LLC

How Poor MHH Impacts Health

Lack of Menstrual Products

When lacking access to adequate, quality, affordable and available menstrual products of choice (hereafter referred to as 'access'), women resort to a variety of coping mechanisms. They use make-shift solutions, such as torn pieces of cloth or toilet paper; compromise on other spending such as food, education or health expenses; choose hormonal contraceptives that suppress or significantly decrease the amount of menstrual bleeding⁴ to avoid having to buy products to manage menstruation; and/or and engage in transactional sex to access menstrual products.⁵ The associated risks of these coping mechanisms include increased risks of urinary tract infections (UTIs), reproductive tract infections (RTIs,) and other infections, as well as unwanted pregnancies from transactional sex.

Lack of Knowledge

Women who do not receive adequate MHH education lack fundamental tools to make choices about their reproductive health, contraception, and family planning, as well as to distinguish what is normal and what is not in terms of menstrual bleeding and menstrual pain/discomfort and when to seek medical support. This can result in late diagnoses and an increased severity of infections when they are left untreated. Lack of knowledge about the menstrual cycle and its connections with fertility may, furthermore, lead to challenges related to reproductive decisions. Without proper education, bleeding changes, such as unpredictable, heavier, and especially the absence of bleeding caused by hormonal contraceptives, become a reason of concern for many girls and women,⁶ who interpret them as signs of infertility or sickness.⁷ Such worries about menstrual bleeding changes can lead to contraceptive discontinuation with unintended pregnancy as a possible consequence. Lack of body literacy negatively impacts self-determination and agency: uninformed and unempowered experiences of puberty and menarche⁸ decrease body ownership and literacy as well as the ability to negotiate safe sex.⁹

Lack of Adequate WASH Infrastructure

Inadequate water, sanitation and hygiene (WASH) facilities, including access to clean water and MHH-friendly toilets, prevent women from washing and changing regularly.¹⁰ This leads to increased risk of infection and menstrual-related health complications.¹¹ Limited access to such WASH facilities can further lead to feelings of shame, discomfort, and anxiety surrounding menstruation, as well as delaying changing of menstrual products and therefore impacting women's hygiene behaviours, overall well-being and mental health.^{12,13}

Lack of Enabling Environment

The stigma and taboo around menstruation prevent open conversation about it. This creates shame and embarrassment in asking questions about the amount, frequency and quality of the bleeding and reduces health-seeking behaviour. When menstruation is associated with readiness for marriage and child bearing, individuals are less likely to seek medical support and more likely to self-censor in conversation with their doctor if they have the feeling that their menstruation is different from others. This is exacerbated by a lack of support from family members, friends and spouses; limited training of healthcare professionals and insufficient research on MHH. This results in delayed diagnosis in case of menstrual discomforts, conditions and disorders that could be avoided if treated on time.

Lack of Adequate Solutions For Pain and Other Recurring Symptoms

Healthcare practitioners do not receive sufficient or comprehensive education about how to treat menstrual pain and symptoms. This means that even when women share their complaints, they are unlikely to receive effective advice on how to handle symptoms and treat underlying conditions. Women are often not equipped with the language to describe their pain or their symptoms, for example, the characteristics of their blood or how much of it they are losing. This leads to dismissal of and confusion about symptoms of underlying diseases, potentially leading to misdiagnosis or late diagnosis. Untreated and dismissed irregularities and (co)morbidities associated with the menstrual cycle, such as fibroids, endometriosis or Polycystic Ovary Syndrome (PCOS), can have an effect on fertility.¹⁴

Barriers

Effects



Lack of Menstrual Products

- Causes increased risks of urinary tract infections (UTIs), reproductive tract infections (RTIs), and other infections, as well as unintended pregnancies from transactional sex.



Lack of Knowledge

- May lead to challenges choosing (hormonal) contraceptive options.
- Worries over bleeding changes caused by hormonal contraceptives can lead to contraceptive discontinuation.
- Lack of body literacy negatively impacts self-determination and agency: decrease body ownership and literacy, and the ability to negotiate safe sex.



Lack of Adequate Infrastructure

- Prevents women from washing and changing regularly, which leads to increased risk of infection and menstrual-related health complications
- Leads to feelings of shame, discomfort, and anxiety surrounding menstruation, as well as delaying changing of menstrual products



Lack of Enabling Environment

- Prevents open conversation about menstruation, which results in delayed diagnosis in case of menstrual discomforts, conditions and disorders that could be avoided if treated on time.



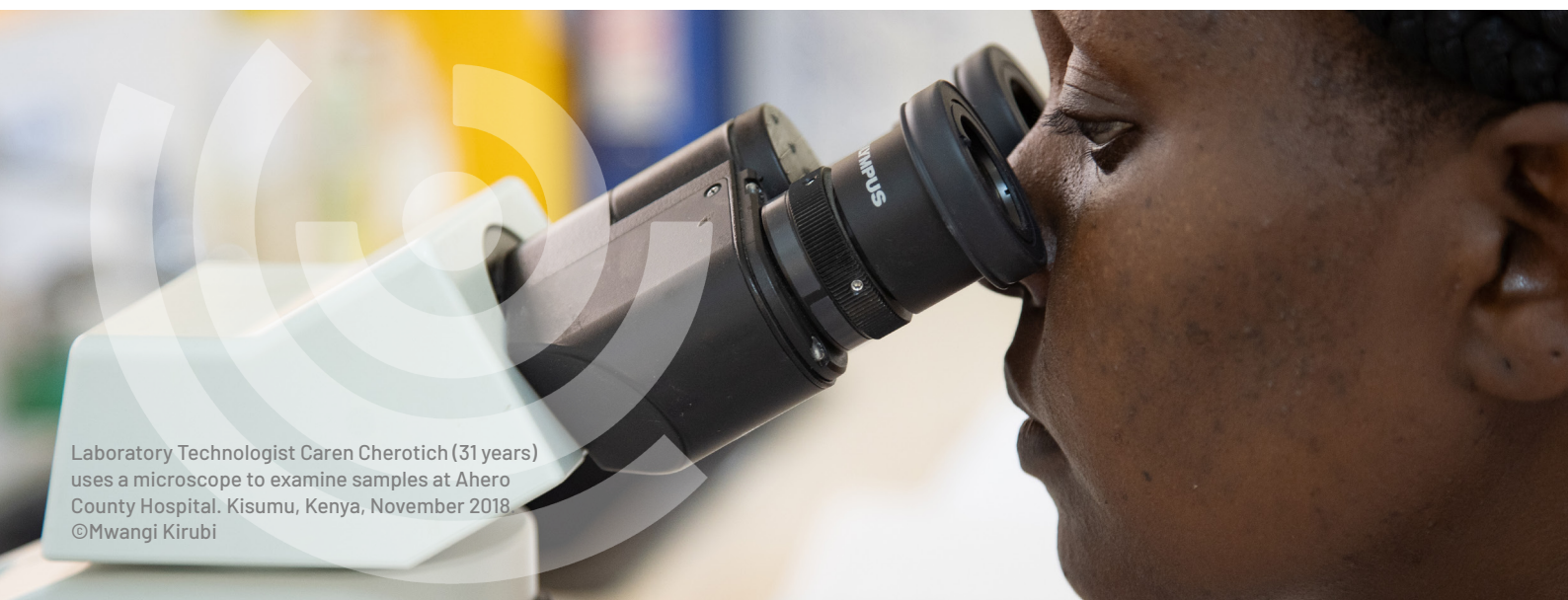
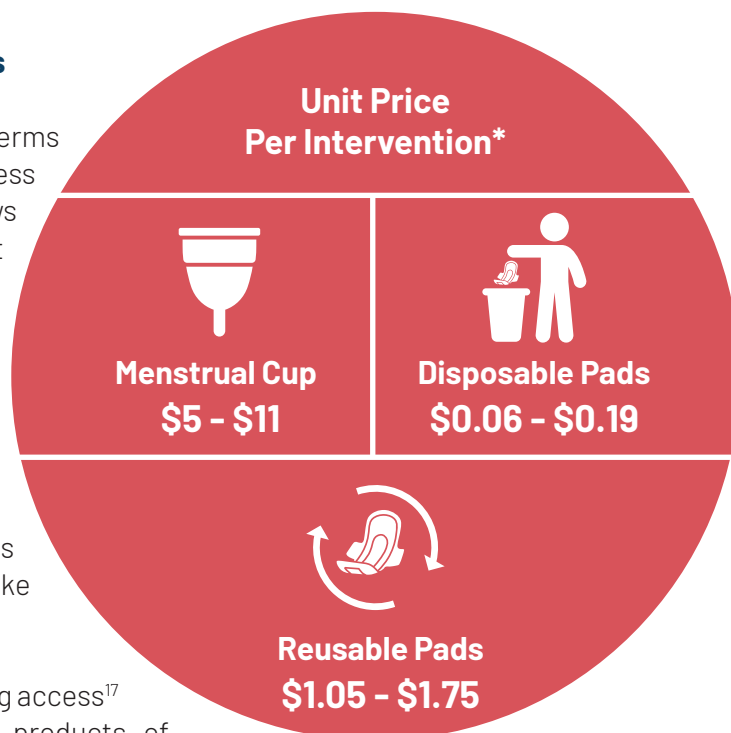
Lack of Adequate Solutions For Pain and Other Recurring Symptoms

- Women will be unlikely to receive effective advice on how to handle symptoms and treat underlying conditions.
- Untreated and dismissed irregularities and (co)morbidities associated with the menstrual cycle, such as fibroids, endometriosis or Polycystic Ovary Syndrome (PCOS), can have an effect on fertility.

MHH Interventions and Costs to Improve Health Outcomes

Availability of Affordable MHH Products

- Each person has different needs in terms of menstrual products. Ensuring access to a range of menstrual products allows individuals to choose the one(s) that best suit their preferences and needs.¹⁵ Providing access to products is crucial to prevent infections¹⁶ and to reduce other coping mechanisms listed above. It is also essential to promote comfort and autonomy in managing menstruation. When women and girls receive sufficient information about the different options to manage their bleeding, they can make informed choices.
- Interventions should focus on guaranteeing access¹⁷ to a variety of affordable, high-quality products of choice, combined with information about how to use, care for, dispose of and/or store them. This can be done through community interventions or health care providers that would be able to advise people coming to their practice on various product options.
- To guarantee that menstrual products on the market are safe, quality standards must be put in place to improve the quality of menstrual products.



Laboratory Technologist Caren Cherotich (31 years) uses a microscope to examine samples at Ahero County Hospital, Kisumu, Kenya, November 2018. ©Mwangi Kirubi

* The \$ symbol indicates USD throughout the brief. Price ranges are approximate and can vary significantly depending on the country, region, and specific circumstances. Prices for menstrual cups include the costs of replacement and are based on: implementation costs in low-income countries for USAID, PSI-Zimbabwe, and literature (Babagoli et al. (2022)(see citation 18). USAID learning brief (2022)(see citation 28,29). A systematic review of Van Eijk et al. (2019)(see citation 16) found a range of \$0.72-\$46 and median of \$23-\$30 per menstrual cup, however, this was based on 99 countries and 145 brands in mostly high-income countries, and therefore less relevant in low-income settings. Disposable pad prices are based on PSI Zimbabwe, Babagoli et al. (2022)(their actual costs and sensitivity range). Reusable pad prices are based on cost information from PSI-Zimbabwe and KMERPad Cameroun. Additional information, including calculation details, are available upon request by sending an email to info@shfund.org.

MHH Education

- Adequate education about menstruation and the menstrual cycle is important to achieve good MHH. MHH education should include what is normal in terms of pain and bleeding, how to track the menstrual cycle and how to follow safe hygiene practices. Information should be provided starting from ages 8-10, with the onset of menarche, and repeated in later years, such as during secondary school and should be delivered to both girls and boys. National curricula should be developed to mainstream MHH education and it should be integrated into existing puberty education and in teacher training. MHH education should also be provided to the adult population (women, parents, caregivers), to enable them to better support their children.

Example Of Annual Cost Per Beneficiary**



MHH Education
\$3.44 - \$8.99

- Interventions should consider the stigma and taboo of menstruation in the community. To break the taboo and promote positive norms, community interventions and (social) media campaigns should be implemented, normalising menstruation and sharing information about what is normal and what is not, as put into practice in campaigns implemented by PSI Madagascar.¹⁸
- MHH education should also target health professional groups, to enable all healthcare workers coming into contact with girls and women to support them in their MHH needs. Education for health professionals should focus on normalising MHH and tackling taboos, educating them about product options, and training them to recognize and treat menstruation-related complications and disorders.

MHH-

Friendly Sanitation Facilities

Example Of Annual Cost Per Beneficiary***



MHH Infrastructure
\$17 - \$67

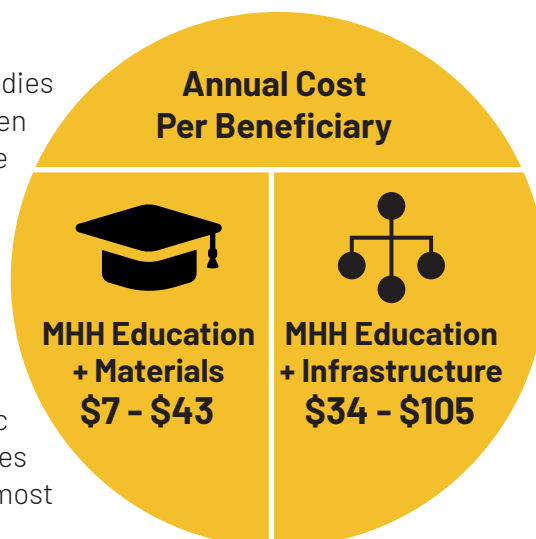
- Providing MHH-friendly sanitation facilities including toilets, handwashing stations, and places to change in schools, households, public buildings and health centres is essential. They should offer privacy and proper disposal options in bins that are regularly emptied. Access to MHH-friendly sanitation facilities combined with an introduction to the right norms on hygiene practices can improve these practices and reduce the risk of contracting infections.

** Price indication is merely an example of how much such an intervention can cost (based on cost data from implementor Irise Group in Uganda, and literature (Babagoli et al. (2022) in Kenya (see citation 18)). There is not enough available cost data to provide a rigorous range of expected costs in general.

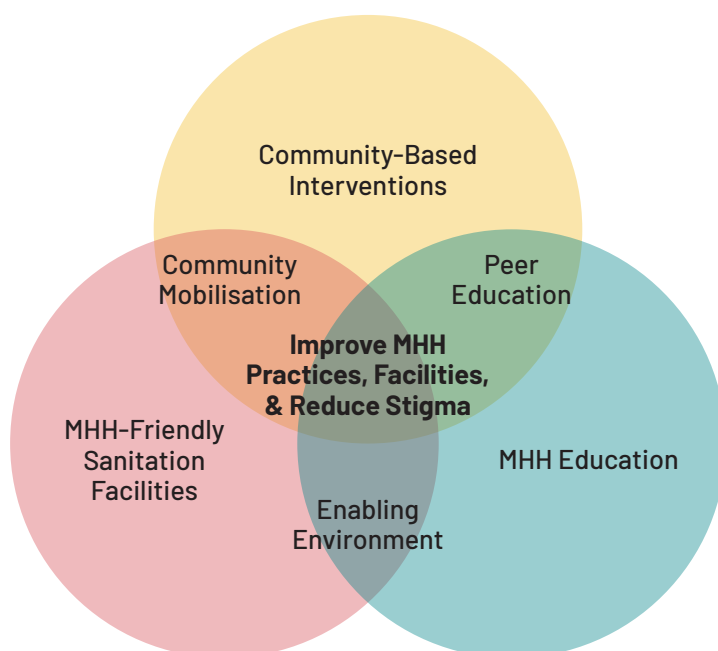
*** Price indication is merely an example of how much such an intervention can cost (USAID MHH infrastructure component in the workplace in Kenya and Nepal). There is not enough available cost data to provide a rigorous range of expected costs in general.

Holistic Interventions

- While the above interventions are presented separately, studies and programs have shown that they are most effective when combined.¹⁹ Bundling menstrual product provision, adequate infrastructure and MHH education is more effective, because it addresses multiple dimensions of menstrual health. Providing menstrual products alone may not be sufficient if individuals lack knowledge about menstruation or access to hygiene facilities. Similarly, educating individuals without ensuring access to appropriate products and infrastructure limits the practical application of that knowledge. A holistic approach that integrates all three components and promotes informed choices, safe practices, and positive norms is most effective at having long-lasting positive impact.



Presentation of a holistic programme



Integration of Menstrual Health in SRHR Services^{*A}

- Whenever women experience symptoms associated with menstrual health-related discomforts or disorders, healthcare workers should be able to recognize the symptoms and make the correct diagnosis. For example, if a client presents with heavy periods, the cause of these heavy periods should be assessed, as they could be due to normal physiological reasons or contraception (particularly the non-hormonal IUD), or caused by menstrual disorders such as endometriosis, PCOS or fibroids, some of which can later cause maternal morbidity and mortality or infertility. Postpartum counselling in particular can benefit from and should include discussions about variations in menstrual cycle and bleeding. If women know that their fertility can return before their first postpartum period, they will be better equipped to avoid unintended pregnancies.
- Interventions should integrate information about the menstrual cycle into family planning and SRHR counselling, to support women and girls in choosing the contraceptive method that is right for them, while addressing contraceptive discontinuation.²⁰

^{*}No cost data (Cost per Beneficiary) are available for this intervention.

Potential Health Outcomes from Investment in MHH



Outcome 1: Reduction in Disease Prevalence

- Introducing quality menstrual products has been shown to reduce the incidence of diseases. A study conducted in rural Kenya showed that the provision of menstrual cups or menstrual pads for one year has the potential to reduce the incidence of chlamydia, gonorrhoea, trichomoniasis, bacterial vaginosis, and candidiasis.²¹
- Access to pain relief medication and evidence-based menstrual education can result in reduced pain and relief from associated symptoms.^{22,23} See further linkages on pain and access to education in the ‘Impact of Investment in Menstrual Health and Hygiene (MHH) on Education Evidence brief’.
- MHH literacy can increase early detection and diagnosis of underlying diseases.²⁴ Identifying abnormal menstrual patterns in adolescence can improve early identification of health concerns in adulthood. Much can be learned about a woman’s health by analysing the level and pattern of pain and other symptoms related to her menstruation and overall menstrual cycle.



Outcome 2: Reduction in Healthcare Costs

- Provision of menstrual materials, education and changes in norms can reduce RTIs and other health issues and thereby contribute to reduced healthcare expenses.^{25,26}
- Early diagnosis (and treatment) of menstrual pain and disorders at primary care level can help avoid higher patient costs for expensive treatment at secondary care level, if the issue is mis- or undiagnosed and then escalates as a result.



Outcome 3: Improvements in Psychosocial Well-Being

Improving MHH has significant positive impact on girls’ and women’s psychosocial well-being, including reducing shame and embarrassment related to menstruation and improving their sense of autonomy and control over their bodies.²⁷ Studies show that:

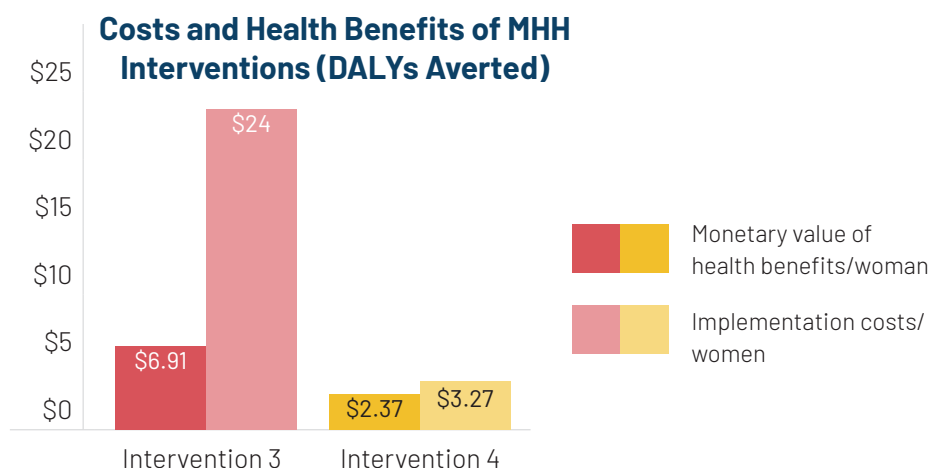
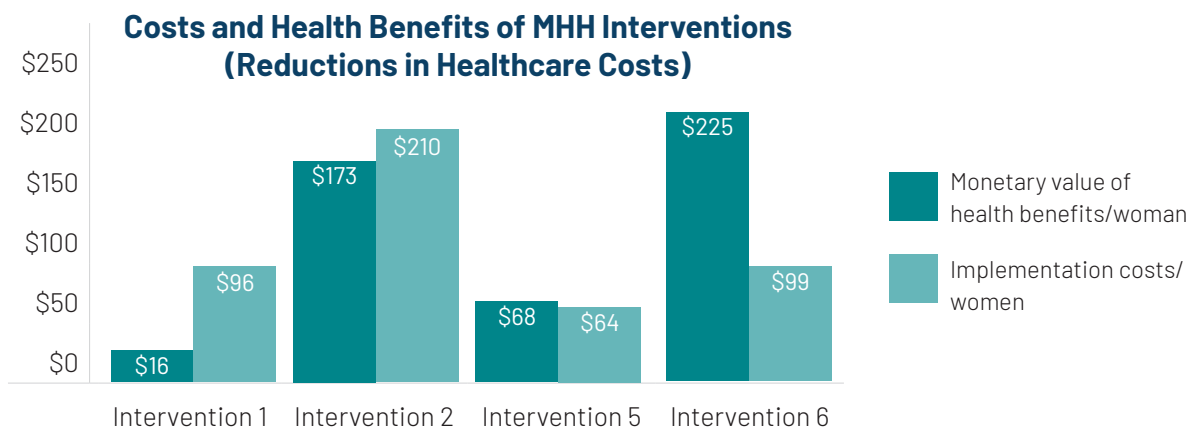
- The use of single-use menstrual pads is positively associated with confidence to manage menstruation at home²⁸ and both single-use menstrual pads and menstrual cups improve physical, emotional, social and educational well-being over time. Physical well-being improved in the menstrual pads group, and girls with heavy periods reported improvements in emotional well-being from the menstrual cup.²⁹
- Features of sanitation facilities such as cleanliness and the presence of a proper waste disposal option that is frequently emptied, as well as supportive policies in schools, are associated with increased confidence at home.³⁰
- Interventions that improve access to menstrual products and MHH education can improve girls’ psychosocial well-being, including self-esteem, body image, and social connectedness, and reduce feelings of shame.^{31,32}
- MHH education workshops can lead to improved confidence at and decreased fear of menstruation, improved understanding of the link between the menstrual cycle and reproductive health,³³ understanding of cervical fluid discharge as a normal part of the menstrual cycle and a decrease in the belief that menstrual blood is dirty.³⁴

Potential Returns on Investment (ROI) in MHH on Health

Investing in MHH interventions to achieve general health outcomes can yield various returns. However, proving direct causal relationships between MHH interventions and health outcomes is challenging and measuring health benefits in isolation is complex. Consequently, the evidence base on cost-benefits of MHH interventions for health remains limited. The costs and benefits presented in the remainder of this section are based on two peer-reviewed studies that include rigorous evidence on linkages between MHH interventions and health outcomes of women. One study researched four MHH interventions (see MHH interventions 1, 2, 5 and 6 in the table below) and health benefits were estimated as 'reductions in healthcare costs.' The other study researched two MHH interventions (interventions 3 and 4 in the table below) and estimated health benefits using a different metric, reductions in Disability-Adjusted Life Years (DALYs).[^] Although these interventions likely impact other well-being domains as well, such as psychosocial well-being, no single piece of evidence covers all categories. Thus, the estimates provided should be interpreted cautiously, serving as an indication of the monetary value of health benefits when investing in MHH interventions.

The following table summarises the interventions and their measured health benefits:

Intervention 1&2 Nepal, Kenya	Intervention 3 Kenya	Intervention 4 Kenya	Intervention 5&6 Nepal, Kenya
Workplace MHH interventions: MHH education, WASH infrastructure improvements, provision of menstrual materials	MHH educational component combined with the provision of sanitary pads	MHH educational component combined with the provision of menstrual cups	Workplace MHH interventions: MHH education and provision of menstrual materials
Measured Health Benefits: Reductions in healthcare costs	Measured Health Benefits: Reductions in DALYs	Measured Health Benefits: Reductions in DALYs	Measured Health Benefits: Reductions in healthcare costs



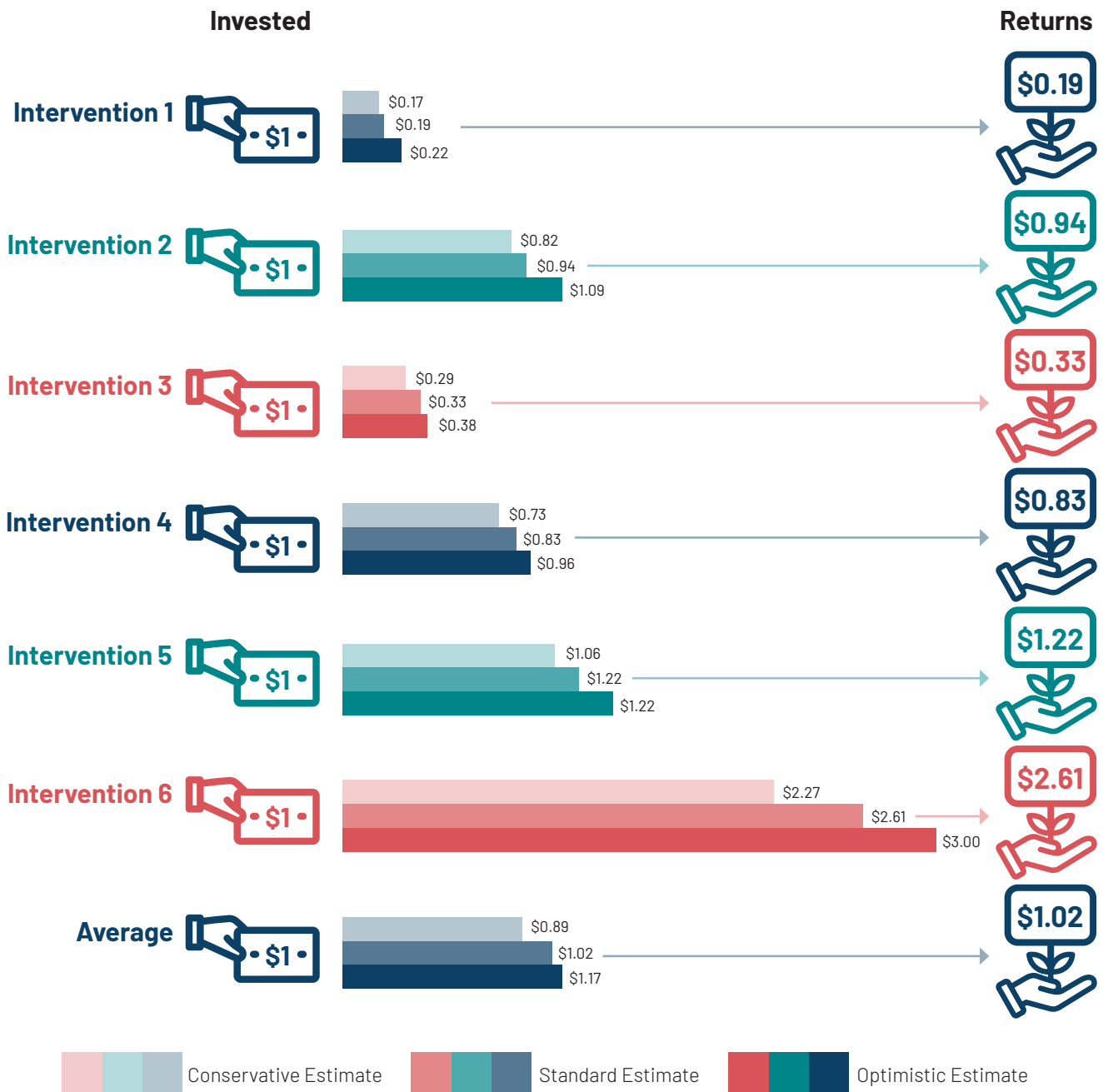
[^] Even though these studies used different metrics to capture the health benefits, both metrics can be quantified and turned into monetary values. In the graphs below, this is called the 'monetary value of health benefits/woman'.

The results of these interventions demonstrate a range of costs and benefits. In general, the interventions have led to significant health benefits, with relatively higher cost savings recorded in Nepal (interventions 2 & 6) compared to Kenya (interventions 1 & 5). It is important to note that calculating DALYs averted differs significantly from calculating reductions in healthcare costs, which explains the lower monetary values associated with the DALY method (interventions 3 & 4). To put the health estimates of intervention 4 (provision of menstrual cups) into perspective, the effects are of similar cost-effectiveness as other well-known interventions such as distributing cholera vaccines, typhoid vaccines, treating obstructed labour with caesarean delivery and constructing piped water supply and sewer connections to improve sanitation in rural areas.³⁵

The results on healthcare costs reduction on the one side (left panel) and DALYs averted on the other (right panel), should be viewed as complementary rather than mutually exclusive. MHH interventions are likely to impact both reductions in healthcare costs and DALYs averted. Furthermore, it is essential to recognize that MHH interventions can improve health outcomes beyond easily measured metrics, and their benefits extend to other domains too, such as education and the economy (see the evidence briefs Impact of Investment in Menstrual Health and Hygiene (MHH) on Education and on Economic Well-being).



Returns of Investing \$1 in MHH Interventions (Health Returns)



The graphs illustrate the monetary ROI when investing US \$1 in MHH interventions to improve health outcomes, considering reductions in healthcare costs or DALYs averted. The graph above presents the sensitivity analysis with conservative, standard, and optimistic estimations. On average, the six types of interventions demonstrate modest returns, ranging from \$0.89 (conservative estimation) to \$1.17 (optimistic estimation). As mentioned before, the true benefits are likely to be higher than these estimations. Therefore, this analysis does not provide an exhaustive account of all MHH benefits but offers evidence of the relative efficiency of different interventions in improving health outcomes for girls and women.

In conclusion, investing in MHH interventions for health has potential to create a positive impact on the lives of girls and women. While the evidence base may have limitations, the demonstrated health benefits and modest returns showcased in the analysis emphasise the value of prioritising MHH interventions.

*+ Additional information, including calculation details, are available upon request by sending an email to info@shfund.org.

Limitations and future research

The ROIs presented in this section are based on three studies. While the method applied to combine insights from these studies is rigorous, the findings cannot easily be generalised. The current state of the evidence base on the cost-effectiveness of MHH interventions is still limited for several reasons:

- The majority of studies do not report on any cost information;
- It is difficult to prove causality for the economic, educational and health benefits of MHH interventions, as well as quantify them, since they are often interdependent and at times overlap;
- There is no universal consensus on how to measure MHH benefits, therefore each study measures it differently, hindering generalisation and comparability;
- There is no universal definition of what a standard MHH intervention entails, therefore most studies research different types of MHH interventions and cannot easily be compared;
- Not every country is represented in the evidence base, as currently, there is an overreliance on evidence coming from a handful of countries such as Nepal and Kenya, where the majority of MHH interventions have been implemented over the past decade;
- There is no consensus on what universal MHH coverage entails;
- Most MHH interventions are holistic interventions, limiting the evidence on the effects of one single component of MHH interventions, making it difficult to provide investment advice on single components.

In light of the listed limitations, there is great need for further cost-effective evidence of MHH interventions. To fill this gap, it is important that researchers and practitioners start reporting on the costs of the interventions they implement and/or study to contribute to existing evidence and to diversify the countries where such studies take place. Harmonising definitions and measurements of MHH interventions will help compare the effectiveness of such interventions and build the evidence base further.



Senior Nurse N'deni Annick, 42 years, poses at Mouyassue Rural Health Centre. Cote d'Ivoire, August, 2019. ©Mwangi Kirubi

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