**FORUM**

**Connecting female genital schistosomiasis and menstrual hygiene initiatives**

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**Abstract**

Effective future control of female genital schistosomiasis (FGS) requires an integrated and multisectoral approach, bringing together HIV, sexual and reproductive health, and reproductive rights sectors. Within this, we now highlight an underappreciated but important connection between FGS and menstrual hygiene initiatives in Africa.

In October 2009 a WHO working group recommended that urinary schistosomiasis, as caused by infection with *Schistosoma haematobium*, be henceforth referred to as urogenital schistosomiasis i. The primary motivation was to draw attention to the damage this schistosome can induce in the genitalia of both genders and its interplay with the unfolding HIV epidemic as an Africa-specific epidemiological driver [1]. The latter is perhaps equally as important as more well-known global risk factors such as sexually transmitted infections (STIs) [1]. For example, syndromic management of STIs has been a long-term universal foundation strategy for HIV prevention, whilst control of urogenital schistosomiasis, as another beneficial factor, has not. With further underpinning research, this impetus saw fruition in December 2019 upon publication of the UNAIDS report entitled “*No more neglect: Female genital schistosomiasis and HIV*” ii. In so doing, control of female genital schistosomiasis (FGS) was brought forward successfully into the HIV intervention agenda.

**The multidimensions of FGS and menstrual hygiene**

Today, some 56 million adolescent girls and women in Africa are estimated to suffer from FGS which likely increases their risk of HIV acquisition up to fourfold ii. To improve their well-being, and those at-risk in future, the UNAIDS report called for an integrated response within sexual and reproductive health services that address FGS alongside other diseases and issues coherently. An expanded access to praziquantel treatment is crucial. This was further endorsed by Hotez *et al.* in their disease primer on FGS as published in *The New England Journal of Medicine* [2]. Whilst both articles stress that FGS is one of the most common gynaecological conditions in Africa, each article did not elaborate, as well as they might, on the connection between FGS and menstrual health management (MHM). It was raised, albeit tangentially, within the UNAIDS report by description of an exemplar FGS case (see **Box 1**) and was given a passing mention within the portfolio of community mobilization, education and counselling as “*hygiene education, including menstrual health*” ii.

Presently, MHM (see **Box 2**) is typically considered within the water, sanitation and hygiene (WASH) agenda. In 2012 in Washington DC, the Joint Monitoring Programme led by WHO and UNICEF created a definition of MHM iii. Although not formally incorporated into the Sustainable Development Goals (SDGs) as an explicit indicator, SDG 6 mentions the “*unique needs of girls and women*” for sanitation. By contrast, WASH is a central multisectoral platform for prevention and control of all forms of schistosomiasis, including FGS. However, the motivation(s) for use of unsafe washing water in MHM is a largely overlooked facet of urogenital and intestinal schistosomiasis control [3]. This unfortunate oversight arose, being eclipsed perhaps, by the more obvious gaps in local infrastructures (e.g. water supplies & latrines) or at-risk behaviours (e.g. bathing & swimming) that need to be first addressed as each are major routes of infection and contamination. Similarly, there may or may not be sufficient WASH facilities within schools to service even basic MHM needs [4], perpetuating a vicious cycle of schistosomiasis in girls.

**Putting FGS and MHM into context**

Even with the growth of the scientific literature on FGS and advancement of its clinical detection with colposcopy iv, today just under 11,000 women have been formally examined and reported in surveillance studies, bringing to light just the tip-of-the-iceberg. Consequently, the true impact of this form of urogenital schistosomiasis at a population level is both grossly underreported and much underappreciated. No more so than in underserved, impoverished rural and remote areas of Africa and in the demographic group of young and/or adolescent girls, when menses first occurs. Here, even if a colposcope was available with competent medical staff to use it, invasive examinations are unacceptable in young girls [1].

As medical textbooks or nursing curricula associated with sexual and reproductive health fail to consider urogenital schistosomiasis, even its classic signs and symptoms (i.e. dysuria and/or haematuria), notwithstanding those of FGS more specifically (i.e. dysmenorrhoea, leucorrhoea, irregular vaginal bleeding and/or sub-fertility etc.), are typically misdiagnosed in primary care services during syndromic management of STIs [5]. Furthermore, such clinical mismanagement and failure to offer praziquantel treatment is known to cause undue confusion and stigmatisation for those, especially vulnerable girls, in need of more appropriate counselling, help and support [5].

For 26% of the world’s population, menstruation is a normal healthy process, yet through a lack of guidance, support and gender discrimination, this prevents adolescent girls and women from developing and then sustaining their ability to manage menstruation with confidence and dignity [6]. For those less fortunate, there are many reports using makeshift materials to manage blood flow, such as rags, tissues, toilet paper or blanket/mattress pieces that cause leakage, chafing, difficulty in walking any distance, and an inability to engage in school or work. This impacts on their health, wellbeing and potential to succeed, for example, to attend and hopefully complete primary education and beyond [6]. Lack of materials to manage blood flow can make women and girls also a target of sexual coercion [7], while unhygienic materials predispose them to increased risk of urogenital infections, including bacterial vaginosis [8, 9].

Inadequate access to safe and clean water, sanitation and hygiene, inadequate education, and poor disposal facilities compound their discomfort, shame and fear [9]. Collectively, this raises the public health concern of MHM, defining top priorities for guiding ameliorative change [10], and the so-called ‘*MHM in ten*’ agenda as set within a 2014-2024 perspective v. Attention is therefore given on supporting adolescent girls and women to define the local scope of their problem and to identify solutions that support their MHM needs, for example, with reusable menstrual cups or other sanitary products [11]. As might be expected, special emphasis is placed on schoolgirls. Since the infection-profile of *S. haematobium* (and other schistosome species) typically peaks within this age, with overt disease present in many, it is unfortunate that FGS has received no attention to date within the MHM agenda [10,11], or in MHM studies in western Kenya where urogenital schistosomiasis has been time immemorial [12,13]. Today, FGS is still strangely ‘orphaned’ within the sexual and reproductive health agenda, only recently being promoted therein due to the impetus of HIV control.

Although efforts are underway to identify and test solutions to address access to sustainable MHM products, education and WASH facilities, with broader needs in schoolgirls identified, the MHM needs of girls (and women) with FGS have not been assessed. Given the multidimensions of FGS, and clear links with poverty and schistosome infested waters [1], if not coherently addressed, these may continue to exacerbate other dimensions of social deprivation, poverty and inequity [2]. This is especially pertinent where there is a lack of general knowledge in communities about the signs and symptoms of urogenital (and intestinal) schistosomiasis. More importantly perhaps, are deficits existing among health care workers/auxiliary volunteers that cumulatively block or bottleneck adequate access to services or in services provision [5].

**Connecting FGS and menstrual hygiene initiatives**

Although several cross-cutting intersections between FGS and MHM clearly exist, spanning across both aetiology, management, and impact, each of these are also embedded within other disease control programmes and community engagement initiatives. Thus, obtaining a clear line-of-sight on their collective importance across this complex panorama has been difficult. The current lack of dialogue has also stalled any opportunity for synergy. We therefore hope that this article stimulates an explicit appreciation of this overlooked issue and establishes future joined-up actions that better serve the neglected MHM needs of girls and women with FGS.

**Box 1: A featured exemplar case of FGS and menstrual irregularities in UNAIDS report**

The following example was used within the UNAIDS report ii: **‘**In a rural village in north-western United Republic of Tanzania, a 19-year-old girl attended a clinic complaining of irregular menstrual bleeding for the past 6 months. She also had bloody urine. A pelvic examination showed an irregular mass measuring approximately 4 x 7 mm on the face of the cervix. The medical team took a biopsy and sent part of it to the pathology laboratory at the referral hospital. The doctor crushed a small portion of the biopsy to examine it for schistosome eggs and found hundreds. The pathology department found no evidence of cervical dysplasia or cancer. The girl was treated with praziquantel and followed up over 18 months. Her cervical lesion regressed, the eggs in her urine cleared, and her irregular bleeding stopped. She now has two young children and is doing well.’

**Box 2: Definition of adequate menstrual hygiene management (MHM)**

WHO/UNICEF’s Post-2015 Global Monitoring Working Group on Hygiene iii defined MHM as: ‘Women and adolescent girls are using a clean menstrual management material to absorb or collect menstrual blood, that can be changed in privacy as often as necessary for the duration of a menstrual period, using soap and water for washing the body as required, and having access to facilities to dispose of used menstrual management materials.’

**Resources**

i[www.who.int/neglected\_diseases/integrated\_media\_urogenital\_schistosomiasis/en/](http://www.who.int/neglected_diseases/integrated_media_urogenital_schistosomiasis/en/)

ii<https://www.unaids.org/en/resources/documents/2019/female_genital_schistosomiasis_and_hiv>

iii<https://www.who.int/water_sanitation_health/monitoring/coverage/wash-post-2015-rev.pdf>

iv[apps.who.int/iris/bitstream/handle/10665/180863/9789241509299\_eng.pdf;jsessionid=C45A38A0E1231F7DBB7CDE82DD4305B1?sequence=1](https://apps.who.int/iris/bitstream/handle/10665/180863/9789241509299_eng.pdf;jsessionid=C45A38A0E1231F7DBB7CDE82DD4305B1?sequence=1)

v<https://www.unicef.org/wash/schools/files/MHM_in_Ten_2014_Meeting_Report.pdf>

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