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Abstract

The rapid urbanization and development of megacities across many low- and middle-income countries creates new challenges in global health; this is particularly true for women and girls who are disproportionately affected by poor urban planning, inadequate sanitation infrastructure, and limited access to water. Urban slums serve to reinforce many gendered inequalities, as reflected in poor sexual and reproductive health outcomes and various other health and wellbeing indicators. Women and adolescent girls in urban slums are particularly vulnerable in relation to their experiences of menstruation, given the limited access they may have to safe, private spaces with water for changing, washing, bathing, and laundering reusable pads, menstrual cloths and pads, and insufficient access to culturally acceptable, adequate disposal mechanisms for used menstrual materials. On-going taboos and stigma around menstruation likely augment these challenges in urban slum contexts; however, there exists limited literature on the intersection of menstrual hygiene management with water and sanitation systems in urban slums in low- and middle-income countries. Through a review of literature, this article seeks to highlight critical interlinkages between urbanization, sanitation, and menstruation, and identify important gaps in the existing menstruation-related evidence base that have implications for the health and wellbeing of adolescent girls and women.

Keywords

menstrual health and hygiene management (MHM), urbanization, slum, water, sanitation and hygiene (WASH), adolescent girls, women

Menstrual Health and Hygiene Management and Water, Sanitation and Hygiene (WASH) in Urban Slums: Gaps in the Evidence and Recommendations

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KEY WORDS

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ABSTRACT

The rapid urbanization and development of megacities across many low- and middle-income countries creates new challenges in global health; this is particularly true for women and girls who are disproportionately affected by poor urban planning, inadequate sanitation infrastructure, and limited access to water. Urban slums serve to reinforce many gendered inequalities, as reflected in poor sexual and reproductive health outcomes and various other health and wellbeing indicators. Women and adolescent girls in urban slums are particularly vulnerable in relation to their experiences of menstruation, given the limited access they may have to safe, private spaces with water for changing, washing, bathing, and laundering reusable pads, menstrual cloths and pads, and insufficient access to culturally acceptable, adequate disposal mechanisms for used menstrual materials. On-going taboos and stigma around menstruation likely augment these challenges in urban slum contexts; however, there exists limited literature on the intersection of menstrual hygiene management with water and sanitation systems in urban slums in low- and middle-income countries. Through a review of literature, this article seeks to highlight critical interlinkages between urbanization, sanitation, and menstruation, and identify important gaps in the existing menstruation-related evidence base that have implications for the health and wellbeing of adolescent girls and women.

1 INTRODUCTION

Rapid urbanization in low- and middle-income countries (LMIC) and the development of megacities generate new challenges in global health, particularly for women and girls; both are disproportionately affected by poor urban planning, infrastructure, and water and sanitation. Urban slums frequently experience overcrowding, marginalization, and insecurity (Mberu, Mumah, Kabiru, & Brinton, 2014). This leads to inequalities and disadvantages with respect to numerous indicators for health and wellbeing, resulting from,

for example, inadequate living conditions, poor access to health services, and increased vulnerability to sexual violence (Mberu et al., 2014; McGranahan, Schensul, & Singh, 2016). Ineffective city planning and policy have encouraged the formation of informal squatter and slum settlements (Ooi & Phua, 2007), highlighting the role of urban governance in creating or solving such challenges.

One aspect of women and adolescent girls' lives that renders them particularly vulnerable in urban slum contexts is menstruation and their needs around menstrual hygiene management (MHM). This includes, for example, access to safe,

private spaces for washing, bathing, and changing menstrual materials, availability of water and hygienic disposal mechanisms (Mahon & Fernandes, 2010; Satterthwaite, Mitlin, & Bartlett, 2015; UNESCO, 2014), and privacy for laundering (washing and drying) used menstrual cloths and underwear (Rajagopal & Mathur, 2017).

While urbanization often brings economic and social advancement and increased access to basic services (World Health Organization, 2010), urban slums are often excluded from these benefits. Although not focused on urban slum contexts, there exists a small but growing body of literature on menstruation and its management in urban environments, including a recent review on menstrual waste disposal in LMIC (Elledge et al., 2018; George, 2013; Sommer, Kjellén, & Pensulo, 2013). A significant gap in the literature exists, however, on the intersection of water and sanitation systems and the management of menstruation in the context of resource-poor urban slums. The current literature overlooks the needs of vulnerable populations living adjacent to, but excluded from, formal urban systems.

The objective of this manuscript is to identify gaps in the existing literature on the intersection of water and sanitation systems and the management of menstruation in LMIC, and to identify initial recommendations for a way forward. Specifically, this article seeks to highlight critical interlinkages between urbanization, sanitation, and menstruation, and identify important gaps that have implications for the health and wellbeing of adolescent girls and women. (We recognize that not all adolescent girls and women menstruate, and that many transgender and non-binary persons may menstruate. For this manuscript, the term “adolescent girls and women” is used to increase readability but also refers to all menstruators regardless of gender identity.) As rapid urbanization continues across LMIC, there is an urgent to address the menstruation-related needs of girls and women in such contexts, both to address their gendered needs around menstruation and to address the impact on sanitation systems.

2 BACKGROUND

2.1 Menstruation and Menstrual Hygiene Management

Adolescent girls and women menstruate between puberty and menopause “an estimated 459 cycles” (Elledge et al., 2018) or spend an estimated 6.25 years managing menstruation (Keith, 2016). This creates a significant monthly need for enabling social and physical environments for managing menstruation. Adolescence, including the onset of menstruation, is a critical phase in the life course; vulnerability to various exposures during this formative life phase can have implications for later health and wellbeing (Hamburg & Takanishi, 1989; Mishra, Cooper, & Kuh, 2010). Managing menstruation during adolescence in challenging environments may increase girls’ vulnerability to sexual violence, stigma, and discrimination, with implications for their future health and wellbeing.

One component of menstruation is access to and use of menstrual products or materials, which is linked to laundering, sanitation, and waste disposal practices. Across urban areas in LMIC, the most commonly used products are reported to be sanitary pads, cloth, and tissue paper (Elledge et al., 2018). A number of governments are starting to subsidize mass pad distribution to school girls, thereby likely shaping norms and usage habits. With increased access to and awareness of commercial hygiene products due to urbanization and development, the use of disposable sanitary pads is likely to grow, as is occurring, for example, in urban India. (van Eijk et al., 2016).

Access to and use of menstrual materials is just one part of MHM. The current definition of MHM highlights specific needs for managing menstruation with safety, comfort and dignity: “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 the menstrual period, using soap and water for washing the body as required, and having access to safe and convenient facilities to dispose of used menstrual management materials” (WHO/UNICEF JMP, 2012).

2.2 Urbanization and Urban Slums

An estimated 60% of the world will live in cities by 2030, with nearly 6.3 billion people living in urban areas by 2050 (Rydin et al., 2012). More than 90% of urban growth will take place in low income regions (Sclar, Garau, & Carolini, 2005). Urban areas concentrate economic opportunities that draw migrants, but rapid urbanization in many LMIC has overstretched local governments’ capacity to meet essential infrastructure and service needs. This results in unregulated, overcrowded living conditions in “undesirable parts of the city” (World Health Organization, 2010, p. X), with significant implications for sanitation, and specifically, menstrual management. Today, nearly 1 billion people live in slum conditions (UN HABITAT, 2015).

Urban slum dwellers and the urban poor make up a very heterogeneous group with differing levels of deprivation and vulnerability (Joshi, Fawcett, & Mannan, 2011). Approximately 59% of the urban population in sub-Saharan Africa, 28% of the urban population in Asia and the Pacific, 21% of the urban population in Latin America and the Caribbean, and at least 67% in some countries in the Middle East and North Africa (MENA) region live in slums (UN HABITAT, 2015). Middle- and high-income countries also experience significant urban disparities in relation to living conditions and access to services.

Even when cities have many resources, such as clean water, sanitation systems, and waste disposal services, they are often only accessible to a small proportion of the population, and “the presumed urban advantage systematically excludes hundreds of millions of people” (World Health Organization, 2016, p. 20). In light of rapid urbanization, the so-called urban advantage is dwindling, heightening the importance of effective urban governance for the provision of basic services—and related health outcomes—in urban slums.

3 FINDINGS

In analyzing the limited literature on urban governance, water and sanitation, MHM and the cultural and environmental factors influencing the experiences of menstruating adolescent girls and women in varying contexts, a number of critical intersections arise.

3.1 The Intersection of Governance, Urban Slums and MHM

The impacts of ineffective governance in cities are most profoundly experienced by women and adolescent girls, as those who menstruate require reliable access to privacy, water, and sanitation. Dense urban settlements have unique requirements to accommodate large populations in small spaces, and how governments cope with urbanization has deep ramifications for the provision of basic services (United Cities and Local Governments, 2014, p. 5). Urban slums often operate outside of direct city governance policies and processes (Jones, 2017), with limited data collected on sanitation and related needs, excluding slums from basic services such as waste collection.

The proximity of informally and formally developed areas within cities can also highlight the disparities exacerbated when development projects “leapfrog” over slums to create an unstructured “patchwork” of gated communities and informal settlements (United Cities and Local Governments, 2014, p. 160). Urban water systems may exist, but are targeted to those who can afford to pay for them. For example, in some megacities, access to toilets and running water is linked to the ability to pay for a connection to an existing privatized water system, rather than proximity to the system (Greed, 2016, p. 3). This has been documented predominantly in South America (Greed, 2016), but also in Africa (Werna, 2000) and parts of Asia (Pandey, 2017).

The link between poor governance, sanitation and waste management in urban slums is more significant than the data indicate. Many informal settlements are not included in government censuses (United Cities and Local Governments, 2014, p. 10), meaning that the estimated 828 million people living in slum conditions globally (World Health Organization, 2010) are excluded. Living in urban slums is often illegal, rendering slum dwellers further invisible (Joshi et al., 2011; Sclar & Volavka-Close, 2011). This impacts investment in basic services and infrastructure but also to whom services are delivered—leaving out the poorest and most vulnerable. For women and adolescent girls, who are often already marginalized, this institutionalized invisibility means further neglect of their needs, and limited access to basic water, sanitation and waste management services essential for managing menstruation. For example, an inability to rely on the government means that those in urban slums must devise their own strategies for disposing of used menstrual materials.

3.2 The Intersection of Urban Sanitation Systems, Gender, and Menstruation

Adolescent girls and women are more acutely affected by a lack of sanitation facilities than boys and men (Black & Fawcett, 2008, p. 45). In many dense urban settlements in LMIC, a lack of toilet access means girls and women are not able to defecate and urinate as needed (Joshi, Fawcett, & Mannan, 2014), and also hinders managing menstruation. Unlike men who are able to urinate more freely, when facilities are not adequate or available, women and girls may “go in their own homes” using buckets or plastic bags (Black & Fawcett, 2008), revert to open defecation (Winter, Barchi, & Dzombo, 2018), or for example, seek railway tracks or municipal dumps under the cover of night, as in Mumbai (Bapat & Agarwal, 2003; Black & Fawcett, 2008, p. 45; Sommer & Caruso, 2015). Lack of easy access to water and sanitation facilities means that women and adolescent girls must find places—often shared facilities or in the dark—to manage menstrual waste, increasing their vulnerability to rape and sexual harassment by both community members and public toilet managers (Women in Cities International, 2011).

A “culture of silence” reinforces a perception of menstruation as shameful and taboo (Scorgie et al., 2016; UNESCO, 2014). Such attitudes and norms around female modesty encourage women and adolescent girls to hide their menstruation and its management, which is even more challenging in crowded slum contexts. These norms are often based in traditions that view menstruating women and girls as “contaminated” and “impure” (Garg, Sharma, & Sahay, 2001; McMahan et al., 2011; Scorgie et al., 2016; Winkler & Roaf, 2014) and may prevent women and girls from accessing shared sanitation facilities, requiring them, in some cases, to wait until nighttime to relieve themselves in a public toilet facility (Black & Fawcett, 2008, p. 85; Schmitt, Clatworthy, Ogello, & Sommer, 2018; Winter et al., 2018). Feelings of disgust in both men and women around seeing menstrual blood necessitate secrecy (Caruso & Sommer, 2018) that can contribute to improper disposal in crowded urban contexts and can impact how menstrual waste is disposed of—such as by flushing sanitary pads down the toilet or by dumping collected menstrual waste into pits (Yeasmin et al., 2017, p. 7). For many women and girls, menstruation means restrictions in daily activities, including bathing (Sommer & Caruso, 2015). The onset of menstruation, when apparent to others, can signal that a girl is available for sexual relations or marriage, placing girls at risk of sexual violence, which is exacerbated by limited access to safe and convenient toilets in urban slums (Jewitt & Ryley, 2014; Mahon & Fernandes, 2010; Nallari, 2015).

Fear and stress may be associated with using a toilet or managing menstruation in crowded urban environments (Amnesty International, 2010; Corburn & Hildebrand, 2015; Hulland et al., 2015; Joshi, 2011; Sommer, Ferron, Cavill, & House, 2015; UNESCO, 2014; Winter et al., 2018). According to a study of resource-poor areas in India, “sanitation-related psychosocial stressors” arise when girls and women are

not able to perform sanitation and hygiene-related behaviors, including menstrual management, bathing, and cleansing, “free from worry, fear, or anxiety,” and the most restricted behaviors (i.e. menstrual management) were most stressful (Hulland et al., 2015). Also in India, and in numerous other countries, women have expressed fear of sexual assault due to broken latches or absent doors on shared toilets (Women in Cities International, 2011, p. 29). This problem is heightened at night, when lack of well-lit roads and insufficient police presence increase their vulnerability to sexual violence (Winter et al., 2018, p. 8). These challenges have also been documented in Kenya, Cambodia, and South Africa (Sommer et al., 2015, pp. 110–111).

Shared sanitation facilities, used by multiple households, are increasingly common in urban slums (Shiras et al., 2018). In places where public toilets are available, ignorance of women and girls’ needs (or lack of direct consultation with them) can mean that toilets are built facing the street, there is no place to dispose of menstrual waste, and there is no water for flushing; thus, they must fetch the water themselves. Male-dominated engineering and planning may fail to account for design components within sanitation systems (e.g. female friendly toilets (Schmitt et al., 2018) that would ensure privacy and safety for girls and women and address their menstrual management needs (Women in Cities International, 2011, p. 28), demonstrating the many ways in which improper sanitation facilities can fail to meet the needs of women and adolescent girls (Black & Fawcett, 2008, p. 225). Moreover, if they are deemed too filthy or unsafe, women and girls may not use toilets even if they exist (Black & Fawcett, 2008; Shiras et al., 2018).

Overall, there has been minimal attention to the disposal of menstrual waste, and waste management systems, in the context of dense urban slums. As access to disposable sanitary pads in urban settings increases, more menstrual waste is generated, and the improper disposal of these products can create a burden on sanitation systems. The disposal of used reusable and cloth menstrual materials, often unconsidered in sanitation facilities, also creates blockages in sanitation systems, necessitating solutions that engage engineers, waste collection systems, and menstrual product users.

4 INFORMALLY ORGANIZED SOLUTIONS

When women and girls are not involved in planning and design processes for sanitation facilities, engineers and governments may not sufficiently consider the critical issues relating to managing menstruation: privacy, convenience, safety, and proper waste disposal options. In a number of places, when city governments have failed to meet the sanitation needs of urban slums, local organizations and communities have organized women’s groups and sanitation committees to develop their own solutions (Black & Fawcett, 2008, p. 39); oftentimes they find success in community derived solutions (Bowles & Gintis, 2002, p. F422), suggesting that

community organizing, the identification of local leaders (particularly women), and partnerships with local organizations can be successful models for developing sustainable local WASH solutions that take the needs of women and adolescent girls into consideration.

5 CONCLUSIONS

Three recommendations emerge from this review of the literature on the intersection of menstruation and water and sanitation systems in low-resource urban contexts. One, there is a significant need to build the evidence on girls’ and women’s lived experiences of managing menstruation in urban contexts, including issues of privacy, dignity and access to water and sanitation systems. Two, there is an important parallel need to build the evidence on what works and what is acceptable in terms of addressing menstrual disposal in diverse cultural urban contexts with varying systems of governance. Three, global development frameworks should include more specific targets and indicators related to MHM, in order to collect more robust data and generate increased resources, and ultimately improve health, wellbeing, and related development outcomes.

With ever-increasing populations living in urban areas and producing the majority of waste in cities, this will have implications for sanitation systems and women and adolescent girls’ ability to properly dispose of menstrual waste and manage their menstruation with safety, dignity, and comfort. Failing to include MHM, and sexual and reproductive health more broadly, in the urban development agenda excludes the unique needs of women and adolescent girls and hinders the achievement of global development goals (Mberu et al., 2014). The importance of governance cannot be overlooked. Municipal governments have the responsibility to serve their populations and must take the recommended actions to improve data collection and inclusion of vulnerable populations in their statistics and planning processes. It is unjust to leave behind already marginalized slum dwellers who lack the economic and structural capacity to significantly improve sanitation conditions themselves (Black & Fawcett, 2008, p. 67). While the Sustainable Development Goals do not explicitly include targets for MHM, poverty, health, gender equality, water and sanitation, inequality, cities, responsible consumption, and partnerships for the goals converge to cover many of the currently unmet needs of women and girls in urban slums in LMIC that will be critical for achieving global development agendas.

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