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Original Research Article

An exploratory study to understand water, sanitation, and hygiene practices and their perceived impact on health status amongst women of reproductive age residing in an urban slum of New Delhi, India

Sumaira Khan[1], Vishal Kumar[2], Nilesh Gawde[3], Antaryami Dash[2]*

[1]Department of MPH Social Epidemiology, [3]Centre for Public Health, School of Health System Studies, Tata Institute of Social Sciences, Mumbai, Maharashtra, India
[2]Save the Children, Gurugram, Haryana, India

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***Correspondence:**
Dr. Antaryami Dash,
E-mail: tissantaryami@gmail.com

ABSTRACT

Background: Disadvantaged urban slums in India are prone to water, sanitation, and hygiene (WASH) inadequacies. Due to biological necessities and sociocultural context of India, women remain one of the most vulnerable groups prone to the negative consequences of WASH inadequacies. This study explored the WASH practices among women residing closer to the community-managed toilet (CMT) in the slum locality of South-West Delhi to determine critical linkages to WASH inadequacies that can be used to improve accessibility, usage, and care provided by the CMT. Objectives of the study were to understand the WASH practices and the perceived physical and psychosocial impact on women residing closer to the CMT.
Methods: Qualitative study using thematic content analysis. Free-list interviews and FGD were conducted to collect data to explore the perceived health effects of WASH practices among the women of the community.
Results: We found that WASH practices are defined by concerns across multiple dimensions and can lead to adoption of harmful coping strategies. An interplay of sociocultural, infrastructural and household and community level factors acts as mediating factors to limit the usage of WASH facilities which may seemingly look available and accessible to women in disadvantaged urban locations.
Conclusions: Access to improved WASH facilities does not imply usage and women are disproportionately burdened by WASH inadequacy. Practices such as reduced eating at night to avoid open defecation and fear of violence threaten women's physical and psychosocial health and well-being. Priority public health attention should be given to the linkages between women's health and inadequate WASH practices.

Keywords: Sanitation, Open-defecation, Urban, Psychosocial stress, WASH, Gender

INTRODUCTION

Globally, 2.3 billion people do not have access to basic sanitation services, with 844 million people lacking clean drinking water, and close to 673 million engaging in open defecation.[1] The majority of water, sanitation, and hygiene (WASH)-related burden falls on the low-and-middle-income countries (LMICs), with an estimated 60 per cent of all diarrhoeal deaths being attributed to WASH related issues in 2016.[2] Within LMICs, women are disproportionately burdened by inadequate WASH services and are underrepresented in WASH policies and programs.[3]

A multitude of studies focused on women and girls have demonstrated that women practice poor WASH and mensural hygiene management practices (MHM), primarily due to lacking resources. While safety and

usability of a facility are critical, we expect women may experience sanitation insecurity regardless of having a safe and functional toilet. As with research on water and food insecurity, sanitation insecurity extends beyond access, is multidimensional, and considers experiences, perceptions, and preferences, associated with the sociocultural context.[4] In India, less than 50 per cent of population has access to safe drinking water with more than two-thirds of the population affected by extreme water depletion.[1] The factors contributing to WASH inadequacy in rural and urban areas vary – but both affect women disproportionately.[5]

Urban slums confer issues of sanitation related to – lack of space and inability to construct toilets, and inadequate water and drainage supply.[6] In New Delhi, as reported by the Delhi urban shelter improvement board (DUSIB) in 2011, 420,000 households, or nearly 15 per cent of the city's population lived in Jhuggi Jhopri clusters (JJCs).[7] When DUSIB surveyed 56,980 of these households living in 589 JJC's, the prevalence of open defecation was 22.3 per cent. While 55 per cent of these households had access to community complex toilets, factors such as overcrowding, walking distance, and the lack of maintenance and repair of these sanitary facilities frequently force women and girls to resort to unhygienic sanitation practices, while increasing their vulnerability to psychosocial stressors, social exclusion, and violence.[8]

The present study focussed on exploring the practices of WASH and its perceived health implications on the general and psychosocial health of women residing in an urban slum in New Delhi, India. It is imperative that the linkages between gender and WASH are recognized by public health researchers where the social and cultural context confers many mobility issues and disadvantages to women.[9]

METHODS

Setting and population

Save the Children has supported the development of a community-managed toilet (CMT) in the slum locality of South-West Delhi, providing a critical ecosystem for access to WASH and other social enterprises in the community. The study used the qualitative research method to understand WASH practices and perceived health impact of WASH practices among women of reproductive age (WRA) residing close to the CMT (within 2 km) to understand the WASH practices and its perceived health impact among these women. Data collection was undertaken in the month of November 2021.

Data collection

Free-list interviews (FLIs) and focus group discussions (FGDs) were used to understand women's voiced concerns and to build an understanding of their WASH practices. The co-author experienced in qualitative methods and fluent in English and Hindi (SK) conducted all interviews and discussions.

Free-list interviews

Free-listing, an elicitation technique for understanding shared perceptions among a group of individuals (Borgatti, n.d.), aimed to learn about women's urination, defecation and menstruation concerns and determine the extent to which concerns were shared among participants.

We aimed to interview at least 60 women one-on-one — more than the 30 recommended for free lists—due to the variability in our sample. We asked women to list concerns they had while urinating, defecating and menstruating, and probed to identify temporal influence and variation across pregnancy and dependency status.

All interviews were conducted in private spaces, typically within the home, and lasted 30–90 min. Households located farther than 2 km from the CMT were excluded as the scope of the study included understanding WASH practices from the point of view of improving the CMT provisions. Households were chosen based on presence and availability of at-least one WRA in the household.

Consent was taken from all the respondents before conducting the interviews and FGDs. All the respondents were assured that all personal information will be kept confidential and to be used for research and publication purpose only. Only pseudonyms were used to narrate the qualitative findings.

Focus group discussions

FGDs aimed to elicit detail about concerns reported in interviews. They enable participant discussion and served to discern if concerns reported in interviews were widely held. FGD tools were developed based on free-list interview results. We conducted two FGDs across two different categories (women with children and women without children). We asked women to discuss their WASH practices and what do they perceive about the difficulties experienced and other concerns mentioned in the interviews if not discussed organically. FGDs lasted 1–2 hours and were held in private spaces (CMT or house).

Data management and analysis

Interviews and FGDs were digitally recorded and translated directly into English. SK listed all concerns reported during each interview and listened to recordings to verify lists. SK and VK generated frequencies of noted concerns and created analytic codes from the concerns and applied them to both interview and FGD transcripts.

We then used applied thematic analysis to examine themes, present participant's voiced experiences and build conceptual models.

RESULTS

Sociodemographic characteristics and key WASH characteristics of respondents

The mean age of respondents was 32 years. A majority (88.3%) of the respondents were married. The mean number of children per respondent was 2.3. All the households from the sample were Hindus, with the majority belonging to scheduled caste. Most of the women in the slum had been working as domestic help pre-pandemic but remained without work as of November 2021. For 42% of respondents, the primary source of drinking water was the community RO plant. More than 60% of respondents reported either financial difficulties or lack of space as the primary reason for them not being able to construct a toilet at home. 63% of respondents said that they indulged in open defecation (OD) on non-availability of the community toilet.

More than 60% of women reported fearing violence and sexual harassment while indulging in OD while more than 35% reported fear of animals in the jungle. 58% women reported eating less at night to avoid OD (Tables 1 and 2).

Conceptual model

Based on the concerns noted, the conceptual model depicts how WASH practices are defined by concerns across multiple dimensions and can lead to various health consequences and strategies for adapting or coping (Figure 1). An interplay of sociocultural, infrastructural and household and community level factors acts as mediating factors to limit the usage of WASH facilities which may seemingly look available and accessible to women in disadvantaged urban locations. Drawing from the findings of the study, a conceptual model was developed to depict these factors.

Table 1: Sociodemographic characteristics of the respondents.

Sociodemographic characteristics of the community (in %)	N (respondents) = 60
Mean age of respondents (in years)	32
Mean age at marriage (in years)	16.9
Mean household size	5.2
Mean monthly household income (in INR)	9,925
Mean years of formal education completed	5.6
BPL card owner	45
Marital status (in %)	
Married	88.3
Widowed or separated	5
Single and never married	6.6
Caste (in %)	
Scheduled caste (SC)	48
General	17
Other Backward Caste (OBC)	10
Scheduled Tribe (ST)	3
Other	7
Don’t know/refuse to answer	15
Employment status of women in household (in %)	
Employed	24
Unemployed/out of labour force	76

Table 2: WASH characteristics of the respondents.

WASH characteristics of the community (N=60)	In %
Primary source of drinking water	
Community RO plant	42
Tanker water	23
Place of employment	14
Bottled water	10
Tap water	6
RO at home	5
Reasons for not constructing toilet at home (N=49)	
Financial difficulties	36
Lack of space	28

Continued.

WASH characteristics of the community (N=60)	In %
Both financial difficulties and lack of space	24
Live on rent so cannot construct toilet	12
Location of defecation on non-availability of community toilet (N=49)	
Open defecation	63
Old public toilet	17
Bathing area at home	10
Naali or ditch	5
Not encountered such situation (always use CMT)	5
Type of discomfort faced while indulging in open defecation (options are mutually exclusive)	
Fear of violence/sexual harassment	63.
Fear of animals in the jungle	38
Ate less at night to avoid defecation	58

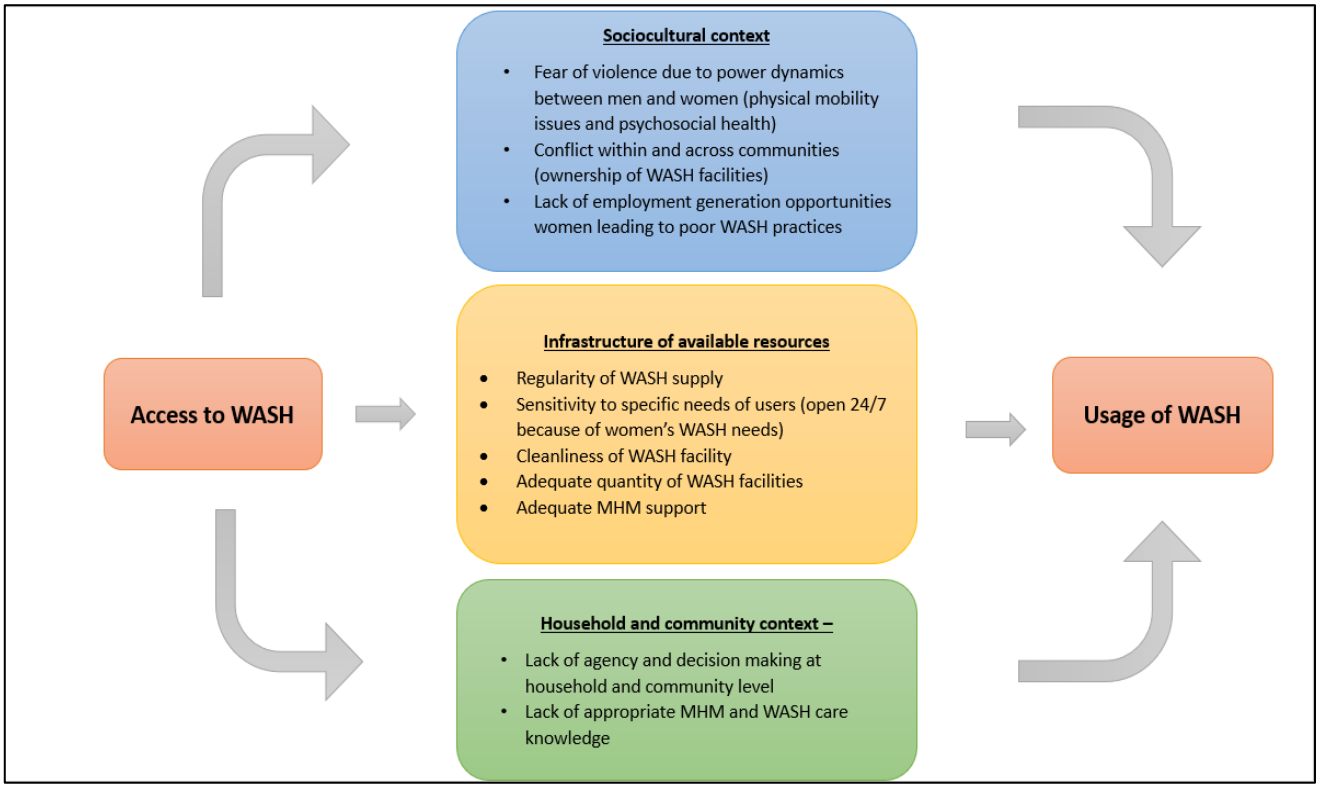

Figure 1: Conceptual model depicting factors affecting access and usage of WASH.

Perceived general health implications of inappropriate WASH practices among the women of the community

The IDI participants described several general health complications surrounding WASH inadequacy in their daily lives. The primary health issues reported by more than five participants have been taken as a sub-theme under the overarching theme in the thematic analysis.

These include – prolonged diarrhoea, potential anaemia associated with eating less to avoid defecation, complications during pregnancy, and urinary tract infections (UTIs) due to inadequate menstrual health management (MHM) support provided to the women. The themes are explained in detail below.

Habitual constipation, diarrhoea and related unhygienic practices

Two participants Sheela and Jyoti (pseudonyms) narrated their fear of going out for defecation at night. Sheela narrated her habitual constipation. She narrates – "God forbid if I get diarrhoea, it gets really bad. I don't want to wake up my husband at night to go the jungle. I suffered habitual constipation because I avoid defecation at night." - Sheela, married, 33 years old.

Jyoti narrated that she feels unhygienic whenever she suffers from diarrhoea. She narrates that when she contracts diarrhoea, she defecates in the bathing area constructed at home and flushes the stool out from a small hole dug in the wall that goes outside. The use of the

bathing area for defecating in "emergency situations" was reported by few respondents. She exclaims that she knows that this is an unhygienic practice which can cause infections in her children.

"We have dug a hole here, see (showing the hole in the bathing area that opens outside). If I get diarrhoea, I use this, and later I flush the stool out with water. I know I should not be doing this. My children can contract infections from this unhygienic practice. But what can I do? You can see my house, right? (Smiling as she shows her house referring to how small it is)" – Jyoti, married, 38 years old.

Period poverty and UTIs

One participant exclaimed that she had contracted UTI in the past because she used to wear the same sanitary napkin for longer to save money that she spent on buying the napkins – "Sanitary napkins are not that cheap. Earlier to save pads, I used to wear the same pad for the entire day and contracted an infection. Then the doctor told me to change them at least 2-3 times a day" – Alka, unmarried, 24 years old.

Period poverty (lack of access to sanitary products due to financial constraints) was noted among the women. Here it is categorically explained that they are used to wear the same sanitary napkin to save money.

It was noted that some women in their pre-menopausal age or middle age who have started to menstruate with irregularity and a lighter flow, do not use any sanitary product during their menses. The reasons they cited were similar to what Alka narrated in the interview, that is, of saving money on sanitary products.

Perceived effects of eating less on weakness and undernutrition

The fear of having to indulge in OD at night leading to eating less at night was linked to weakness and undernutrition by two participants.

"There are undernourished (anaemic) women in the community. We eat less at night so that we don't get diarrhoea or have to go to the jungle to defecate. I feel that this is the reason of being undernourished (anaemic)" – Jyoti, married, 38 years old. "The public toilet is closed at night, and we have to use the jungle for defecation. Because of that I eat less at night. I anyway feel weak, some time ago I was anaemic." – Yogita, married, 45 years old.

Inconvenience during pregnancy due to irregular WASH facilities

One respondent who was pregnant narrated that the irregular water supply for drinking and toilet use and the public toilet being closed for longer during the day for cleaning posed an inconvenience to her. She narrated the adverse effects on her and hinted at potential negative consequences for her unborn child.

"Right now, I'm pregnant. Am I supposed to just stand there waiting for my turn to fetch water? Or when I really want to urinate when there is the pressure of the baby on my bladder... run to the CMT and realize that there is no water right now? I get tired and irritated. It's not good for the baby" – Devi, married, 28 years old.

Psychosocial implications of WASH insecurity among the women of the community

Eating less to avoid OD discomfort

A majority reported eating less at night to avoid defecating in the jungle. In the qualitative interview, this issue emerged again with 3 of the 5 participants narrating that the anxiety related to contracting diarrhoea or the need for releasing themselves late at night leads them to eat less quantity of food at night. One participant also said that she drinks less water at night to avoid the urge to urinate.

"See sister, when I have to defecate at night, I can't go to the public toilet because it is closed. So sometimes, I don't eat food or drink water even if I want to. Just last night, I felt like after eating I would want to defecate, so I thought for a while what I should do. Then I gulped a little bit of milk and went to sleep" – Jyoti, married, 38 years old.

Decision-making and conflicts in the family

One participant exclaimed that the daily restrictions and related hassle for defecation and managing menstruation leads to conflicts within the family as their daily life decisions are centred around WASH inadequacies, which affects the psychosocial well-being of the members and their relationships with each other within the house.

"Because of the restriction on defecation and menstruation, I remain irritated too. Then I take that out on my kids. You only tell me, you're a woman yourself... If from your pelvic area to your legs, you don't feel comfortable...will your mind remain, okay? Sometimes there are arguments in the family and fights between my husband and I over water and bathing. These are very basic things but since we are not receiving them in adequacy, our daily life decisions are based on them, and there is tension in the family and just a lot of anxiety over small things" – Sheela, married, 33 years old.

Psychological distress due to environmental threat

Majority of the respondents indulging in OD reported discomfort and the threat of violence from men as key drivers of their fear while indulging in OD. Half of the respondents also exclaimed that they are scared of lurking animals in the jungle. In the interviews conducted, Alka and Yogita reiterated similar ordeals –

"When I go at night to the jungle, I take my husband or elder son with me. I am really scared. There are drunkards at every corner, and you can never know who is looking at you from the bushes, and what they can do with you. It's not like something very bad has happened to someone in the slum (referring to sexual assault). It's been a long while since we have heard of any such instance...but there is always the fear of lurking men who can pry on women. So that is constantly present and heightened at night" – Alka, unmarried, 24 years old.

"I am scared of men from the adjacent camp…they are aggressive and violent… and pigs in the jungle at night. There are a lot of pigs here... What if one pounces on me and bites me? Even in the daytime if you go to the jungle, you will find pigs roaming" – Yogita, married, 45 years old.

Results from FGD

The FGD focussed on eliciting the specific needs of the women regarding WASH facilities in the community. The following specific needs came to light in the FGD – It was repeatedly expressed by the women that they understood that certain unhygienic practices and sanitation issues made them and their children vulnerable to disease and infection, but due to financial constraints, they were unable to afford the means to better their sanitation and living conditions. This points to an obvious need to improve employment opportunities in the community, even more so after the main income of the families have become precarious after the COVID-19 pandemic. Further, women seemed satisfied with the CMT provisions during the day but complained of infrastructural deficits like the closure of CMT at night, irregular water supply for toilet and drinking water usage. Women also expressed that since only their particular camp was being given the provision of the CMT, there were issues with the adjacent camp dwellers which bred animosity and conflict between the two groups.

DISCUSSION

Adverse physical and psychosocial health effects on women living in WASH insecure regions has been well-documented in extant literature, with negative psychosocial health implications ranging from – fear of harassment and violence, risk of fear of injury from inadequate infrastructure, fear of being bitten by insects, animosity to water vendors for price gouging, et cetera.[5,6,10] There are surveys conducted in slums of Delhi which have reported the prevalence of infrastructural problems and lack of MHM care support, even in slum clusters where community complex toilets have been constructed, leading to social exclusion and increased vulnerability for women.[12]

In line with such findings, the realities of this study were similar. Most families in the slum could not construct toilets in their own homes due to financial difficulties, lack of space and/ or their status as tenants. The condition of the slum remains precarious in terms of the availability and usage of present WASH resources in the community. The slum, although has 100 per cent access to basic WASH facilities, due to the construction of the 80-seater CMT in the area, faces a facility usage issue mainly due to maintenance and infrastructural deficits, along with conflict with adjacent slum residents over ownership of resources. Another study conducted by researchers from the University of Antwerp cites similar WASH practices.[11]

At a cursory glance - the slum seems to not lack access to facilities for water, sanitation, and hygiene maintenance. However, at a closer look we see that WASH practices in the community remain unimproved and WASH facilities scarce and inadequate. Close to 40 per cent of respondents' drink water from unimproved sources on a daily basis, with more than 70 per cent reporting water quality issues. About 10 per cent of the respondents defecate or urinate in the same area that they bathe in, with that area also being the primary location for hand washing on a daily basis. OD at night remains a huge problem for a majority of households, with 63 per cent of women indulging in OD almost every night, increasing their vulnerability to violence and assault. Close to 60 per cent of women report eating less at night to avoid OD. There is a noted period poverty in the community, with irregular provision of menstrual hygiene maintenance products in the CMT and other infrastructural deficits like irregular water supply. Women employment is precarious in the area, with women being unable to fulfil their basic WASH needs, with most households surviving on less than Rs. 10,000 as their income. From a qualitative analysis of the perceived health concerns of the women and their specific needs regarding WASH, it is clear that women are, in many cases, aware of the negative consequences of WASH inadequacy and unhygienic sanitation practices in their daily lives but are often helpless in the face of infrastructural deficits, lack of resources, and financial constraints to better their living condition. Similar deficits in resources and barriers to improved WASH have been noted in other studies conducted in India and disadvantaged urban settings in other LMICs.[12,13]

The present study finds scope in furthering the discourse on access and usage of WASH facilities among women located in disadvantaged urban contexts, which remains an under-research area. The primary approach of the study is exploratory in nature, which resulted in an in-depth understanding of the issue of WASH and gender among the participants using qualitative methods. The thematic map emerging from the study can be further developed through a large-scale study keeping in context the linkages between gender, and access and usage of WASH in the disadvantaged urban locations, considering the various structural and sociocultural realities that limit the usage of seemingly available WASH facilities for women. A potential limitation of the study is the small sample size and use of convenience sampling, which renders the study to be not generalizable to larger populations.

CONCLUSION

Although WASH is often viewed as an infrastructure problem, outside the remit of health systems, this study argues that WASH is integrally linked to health, and women remain one of the most vulnerable groups prone to the negative consequences of WASH inadequacy. The linkages between gender and WASH must be recognized by public health researchers, especially in LMIC where the social context confers many mobility issues and disadvantages to women in vulnerable communities, and WASH infrastructure in urban spaces remains precarious while the efforts to mitigate them remain poorly coordinated. Further, especially in the context of urban disadvantaged areas, it should be recognized that WASH facility availability and accessibility do guarantee WASH facility usage.

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