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WASH Results R/03/2022

Behavioural Determinants for WASH (Water Sanitation and Hygiene) Practices in Urban Households in Pakistan

SUMMARY

UNICEF and the Government of Pakistan (GoP) conducted a formative research between January and November 2020 to better understand WASH practices in urban settings and identify motivations for urban Pakistanis to demand, take-up and pay for affordable WASH services. The focus was on four specific WASH behaviours, namely: i) households (HHs) seek safe drinking water solutions and water for personal hygiene, ii) HHs install appropriate septic tanks for safely managed sanitation, iii) HHs practice the safe disposal of solid waste, and iv) HHs hold WASH service providers accountable for the delivery of quality, reliable and affordable WASH services. The research identified the following key determinants influencing the key WASH behaviours mentioned above:

- Over 70% of respondents were unaware of their water quality. However, those aware were found to invest in water treatment and were most likely to use another water source (if available) in case of quality issues. They understood the link between the use of unsafe water consumption and the potential negative health and economic impacts.
- More than 85% of HHs are connected to piped sewer systems, as such the behavioural determinants with respect to septic tanks installation could not be identified. Overall, most respondents believe that the safe management of liquid waste and faecal sludge is the government's responsibility.
- 94% of households were classified as 'doers' when it came to general solid waste management (SWM), however a significant number of survey respondents confirmed they were using unauthorised disposal sites (making them non-doers).
- Willingness to pay for WASH services was found to be high amongst those who were more likely to practice recommended WASH behaviours.

Key recommendations from the research include increasing support to urban WASH utilities and encouraging all stakeholders to integrate pro-poor Social and Behaviour Change (SBC) strategies into programming.

Introduction

Over 93% of urban Pakistanis have access to improved water sources and 82% have access to at least a basic sanitation service (2020)[1]. Whilst water quantity is not a significant issue in most areas of Pakistan, water quality remains a big challenge. The World Bank reported that drinking water from 56.1% of households is contaminated with coliforms[2]. According to the 2018 National Nutrition Survey, 36% of households in Pakistan drink water contaminated with E. Coli. The primary source of contamination is sewerage (faecal) which is extensively discharged into the environment and eventually find its way into the drinking water supply systems. Poor hygiene practices from the point of water collection, transportation and at the point of dispensing contributes immensely towards water contamination.

According to the UNICEF/WHO Joint Monitoring Programme (JMP 2020), 7% of Pakistanis still practice open defecation, mainly in the rural areas, which lacks dignity and protection, raising safety issues for children and women. Urban sanitation also remains a massive problem, with one-third of residents relying on low-quality latrines with open drains. Blackwater and greywater management are virtually non-existent in the poorer urban areas where households are expected to be connected to the sewerage network or use onsite treatment methods such as septic tanks.

Indiscriminate solid waste dumping into the environment has led to land and water pollution causing hazards such as urban flooding due to drainage blockages. This practice is common in most cities in Pakistan since they lack adequate solid waste management systems. According to the Ministry of Climate Change, only 50% of waste in Pakistan's cities is collected and disposed of appropriately.

Over the years, citizens engagement with WASH service providers to demand quality services and accountability has been limited, while service providers criticize citizens for not paying for WASH services, leading to their inability to deliver as per the expected standards.

Lack of safe water, sanitation and hygiene has had a negative impact in Pakistan where 22.5 % of infant deaths is due to diarrh**o**ea. According to the 2018 Demographic Health Survey, diarrhoea is more prevalent amongst children whose households lack basic sanitation. The same survey reported that 37.6 % children in Pakistan are stunted while 23.1 % are underweight. All these indicators are associated with the lack of safe sanitation facilities in the country. The World Bank estimates that inadequate WASH costs Pakistan 3.94 % of its GDP, which is about US$ 5.7 billion per annum.

To protect its citizens from the negative impact of limited WASH services, the GoP and its partners have been promoting the adoption of safe WASH behaviours through various social and behaviour change initiatives. Targeted behaviours include point of use water treatment, construction of appropriate septic tanks for safe management of wastewater, and proper disposal of household solid waste. The government has also been promoting citizen engagement with service providers through various platforms. However, these efforts are yet to yield the desired outcomes. The formative research seeks to understand the behavioural determinants of adopting positive urban WASH behaviours to guide future investments in SBC.

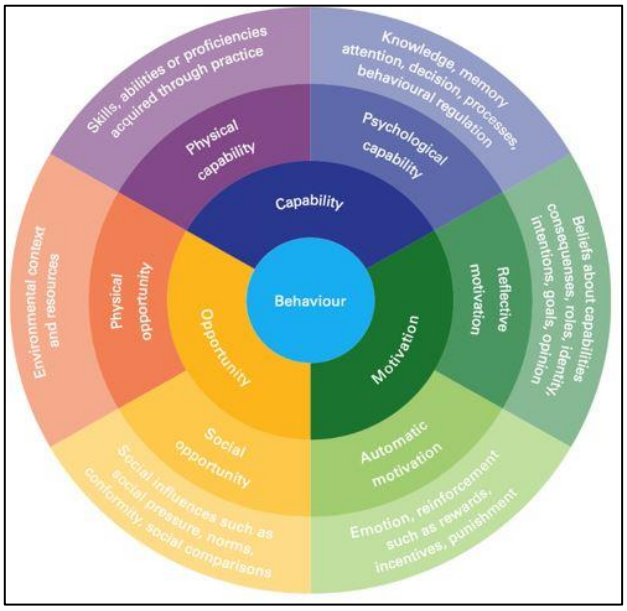
Methodology

UNICEF conducted a cross-sectional study in Lahore, Karachi, and Mingora cities guided by the COM-B (Michie et al, 2011) (Capability, Opportunity, Motive - Behaviour) model **(**Figure1**)**. This model recognizes that behaviours are part of a dynamic system involving three different components which are: *capability* (both psychological and physical), *motivation* (conscious

[1] sdg6data.org

and unconscious), and *opportunity* (physical and social) affecting whether or not an individual adopts a behaviour.

Figure 1: The Com-B Model



The model believes that behaviours are dynamic and are influenced by various factors divided into three constructs. **Capability** looks at an individual's capacity to change or adopt a behaviour, such as having the necessary physical ability, knowledge and skills. **Opportunity** captures external factors that enables or motivates behaviours including environmental and social opportunities. **Motivation** is the expression of an individual's desire to change or adopt a new behaviour. In essence, the COM-B model looks at all the aspects that could potentially affect someone's behaviour; psychological, social and environmental.

Study sites: The cities of Karachi, Lahore and Mingora were selected, to provide a diversity of large and medium urban study areas.

Figure 2: The Study Sites

Data collection

A mix of quantitative and qualitative research tools were used (household surveys, Key Informant Interviews (KII) and Focus Group Discussions (FGDs)

Sampling for quantitative research

Household survey respondents were chosen using a two-stage cluster sampling. Clusters within each urban space were first randomly chosen from locations of different income levels, and a starting point in each cluster was randomly selected. Male enumerators proceeded along the left side of the road and female enumerators proceeded along the right-side of the road, both used a random walk on five households skip rule (i.e., after every house, enumerators then skipped five houses) to select the next household to approach for the survey. 750 household respondents (250 from each city) were included in the survey.

Selection for participation in the Qualitative research

Key informants (KI) and FGD participants were selected using the snowball sampling (a non-probability sampling technique, where existing study subjects recruit future subjects from among their acquaintances). This method was used due to the lockdown situation, as the research team could not be on the ground to carry out mobilisation themselves and relied on professional references. Key informant Interview (KII) and FGD participants were identified based on their professional experience and understanding of the local context.

Service provider respondents were selected based on UNICEF's recommendations. 58 Key Informant Interviews (KII's) with consumers, 11 KII's with service providers and 13 Focus Group Discussions (FGDs) were carried out. Consumer Journey Mappings (CJMs) were carried out with 77 respondents randomly selected by the enumerators within pre-selected households.

The research journey

The research process was divided into three phases:

Phase 1: Identification of the 4 priority behaviours: An in-depth literature review of WASH-related behaviours in Pakistan was conducted, as well as discussions with key stakeholders active in the WASH sector in Pakistan, both with governmental personnel, NGO's, INGO's, the private sector and bi/multi-lateral agencies. These consultations helped the research team identify the pertinent WASH behaviours to be studied further and understand them in the WASH service provision context in the three targeted areas. This first phase helped the research team to focus on the identified four key behaviours as specified in Box 1 below.

BOX 1.

KEY WASH BEHAVIOURS

- *Households seek clean and safe drinking and personal hygiene water solutions*
- *Households install septic tanks for safe disposal of liquid waste*
- *Households keep the environment around their house free of uncollected waste*
- *Increased citizen engagement with WASH service providers for accountability regarding the delivery of quality, reliable and affordable WASH services[Callout copy]*

Phase 2: Primary level (household) research (qualitative and quantitative) was carried out to understand the barriers and drivers of the four selected behaviours. Prior to data collection, the research team developed interview guides and survey instruments, pretested these, and had them approved by UNICEF and key stakeholders. Following the training of enumerators, data collection took place (most of the data collection was carried out remotely due to COVID-19 regulations).

Phase 3: Secondary-level research was carried out through the Consumer Journey Mapping (CJM) to understand the service delivery context. Respondents were asked about their experience with water service providers at different water sources (service touchpoints). This process assessed how citizens access WASH services, including who they access services from, satisfaction levels with the service received, if they pay for services and if so, how much, and their general experience.

Analysis

A barrier analysis, as outlined in the COM-B model, was conducted comparing doers to non-doers. A 'doer' was defined as a person who regularly practice the recommended WASH behaviours while a 'non-doer' does the opposite due to different barriers. During the survey respondents were tagged as either a 'doer' or a 'non-doer' based on their response to a specific set of questions. SPSS was used to calculate odds ratios, p-values and confidence intervals to determine statistically significant determinants of the 4 key behaviours.

Limitations

Due to Covid-19 restrictions, the first phase of qualitative research was conducted over the phone and online which was challenging for both respondents and enumerators. Moreover, this also meant that the poorer sections of the community without internet access were left out. However, the research team ensured that this stratum was covered in the quantitative research (household survey).

Most of the households included in the survey were connected to centralised sewer systems, as such only 2.4% of the respondents reported not having access to this service and were using another sewerage evacuation method. This meant that the sample size of respondents using either a sceptic tank or another sewerage disposal method was too small to analyse in a statistically significant manner, nevertheless, the data obtained from this small sample will still be presented in this paper for reference.

Results

The data presented in this section is based on four key behaviours that were assessed.

Behaviour 1: Households seek safe water solutions for drinking water and personal hygiene

Practice: 79% of respondents are doers of Behaviour 1, indicating that they always, or at least regularly, have access to safe water. Those with access to more than one water source were more likely to be doers compared to those with access to a single source *(OR = 2.580, P-value <0.001)*

The most commonly used water sources were piped water into the dwelling or yard, followed by filtration plants and then boreholes and hand pumps.

Across the research sites marital status, gender as well as income levels were significantly associated with accessing safe drinking water or the adoption of household water treatment methods. Accordingly, married respondents were more likely to be doers compared to those not married *(OR = 2.191, P-value < 0.001),* and single men were more likely to be non-doers. Respondents often mentioned that it was quite common to rely on a family water network for their source of water, something that single men did not have access to. Female respondents were more likely to be doers compared to males (*OR = 3.310, P-value < 0.001).* Single women were more likely to have remained in their families and hence have access to the family water network as mentioned above.

Knowledge & Perception: Women with children were more likely to be doers as they were concerned about the safety of the water, they and their children consume. Respondents who said they accessed water from public taps were more likely to be doers as their perception was that the water from public taps were tested and hence safe, compared to those accessing from other sources, i.e., protected well or hand pumps *(OR = 14.994, P-value< 0.001).* This was attributed to the issue of perceived safety versus the actual status. Those who feared sickness were more likely to be doers compared to those who didn't perceive any problem from unsafe water *(OR = 2.311, P-value < 0.001).*

- Most respondents did not treat their water (81%), as they perceived piped water to be safe.
- Most respondents (65%) believed that the water was safe because it was clear while 25% thought so because it did not smell.
- At least 65% of the respondents highlighted long distance to water sources and lack of knowledge on the availability of alternative safe water sources as barriers to safe water access.
- Respondents from peri-urban areas of Mingora were less likely to look for alternative safe water options as they believed the GoP is solely responsible for the provision of safe water.

Key Barrier: Lack of knowledge on what constitutes safe water coupled with unavailability of household level water quality testing equipment to

hinders communities from making informed decisions.

Key Drivers: Having multiple/alternative water sources, readily available water treatment options, understanding health risk associated with unsafe water, and having a sense of personal responsibility/obligation to access safe water were associated with doers.

Behaviour 2: Septic tank installation for safely managed sanitation at household or community level

Most respondents in both Lahore and Karachi had their sanitation systems connected to a centralised sewer system, therefore, a study on this behaviour was only conducted in Mingora where 51% of the respondents had their sanitation systems connected to a centralised system. Sanitation facilities from at least 23 % of the respondents were connected to a septic tank linked to a centralised sewer system and 21% had only a septic tank, while 4% of the respondents had neither, suggesting indiscriminate disposal of sewerage into the environment.

Since the majority of respondents relied on piped sewerage systems, no primary determinants could be assessed. A number of secondary determinants were found as detailed below, however due to the small sample size (only Minorga respondents) the data could not be analysed for statistical significance.

Barriers to safely managed sanitation included affordability of installation and emptying costs, lack of land, skills, and limited knowledge on septic tank standards. Households with tenants are not motivated to invest in septic tank construction since they will eventually vacate the premises.

Drivers included the ability and skills to construct standard septic tanks, knowledge of the health and environmental benefits of safely managed sanitation, the desire to avoid the consequences of not having one; which includes sickness bad smells, environmental degradation and the nuisance of insects, social stigma and the risk of polio infection.

Behaviour 3: Households keep the environment around their house free of uncollected solid waste

94% of respondents indicated that they dispose of their solid waste in community collection sites outside of their homes making them. This was e common across all demographics: age, education, income and marital status)

The study found that men were more likely to be responsible for the task of waste removal, as women's mobility to collection sites was restricted.

Solid waste management inside the compound and within the immediate outside environment was perceived as the household's responsibility, while anything beyond becomes the government's responsibility.

The study found that HHs who dispose liquid waste appropriately and are willing to pay for WASH services, were more likely to dispose of solid waste through the recommended means.

Those respondents who feel that it is the government`s responsibility to remove the waste were found to dump their waste indiscriminately. The study found that the dumping of solid waste is encouraged by the availability of open/empty lots in urban areas. The inability of the service provider to pick-up solid waste and empty full skip bins created dissatisfaction and a lack of confidence within the communities.

Tenants, as opposed to homeowners, were less likely to make investments in household infrastructure and maintain good WASH practices as they do not own the property and do not want to spend money on something that does not belong to them.

Barriers to safely managed solid waste mainly revolved around the perceived role and responsibility of the service provider to handle all solid waste management vs. the households' own

responsibilities. There is a lack of clear rules and regulations on this issue at community level.

Drivers: Study findings revealed that those who properly managed their solid waste do so because they value cleanliness and fear diseases. Also, willingness to pay for the service, if affordable, are significantly more likely to be carried out by doers.

Behaviour 4: Citizen engagement with the service providers and actively hold them accountable for providing quality, affordable and reliable wash services

The research found that most WASH service providers do offer different feedback mechanisms, however, citizens only seem to engage with WASH service providers when lodging a complaint pertaining to non-availability of a service. For example, the inability to access water was mentioned as the most likely cause for consumers to submit feedback.

Consumers attending community meetings regularly, and those who believed that feedback has the power to change a situation, were more likely to engage with service providers. The majority believed that face to face feedback was more effective compared to virtual complaint mechanisms.

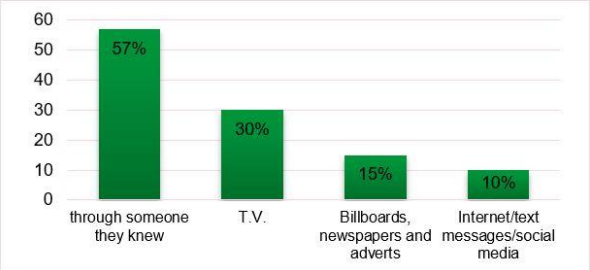
Most of the respondents (89%) in the survey stated that they were not satisfied when they had engaged with the service provider (SP) and they believed that their complaints/feedback would not have an impact if they do so. At least 43% of the respondents who complained didn't get any response from the service provider whilst only 25% of the respondents said that the SP responded and rectified the situation.

Barriers: Lack of communication between service providers (SPs) and citizens, Lack of trust and compromised integrity of the SPs **Drivers:** If feedback from HHs to SPs is handled positively and efficiently, a rapport of trust can be built to improve the consumer/provider relationship. Those who believe feedback has the power to change the situation are more likely to do so.

Communication channels and approaches

The research assessed how consumers receive information about public health and WASH services, and which communication channels would be most efficient in reaching them. See figure 2.

Figure 2: How households receive public health information



The majority (57%) received WASH and public health information from someone they knew, 30% through television, 15 % from billboards/newspapers while 10% received from text/social media. Those mentioned as most trusted to receive information from were as follows and in this order: family, friends, Community leaders, CHW's, religious leaders, the Municipality, NGO's, and in final place Service Providers. These results emphasize the importance of interpersonal communication for future SBCC interventions. While service providers do use various communication and feedback channels, consumers do not seem to be receiving much information through them.

Discussion

Gender and marital status play a significant role in determining access to safe water. As revealed from the study, women are more likely to use safe water compared to men and this could be attributed to the fact that women actively participate in most WASH projects compared to men, hence their level of awareness may be higher leading to sustainable WASH behaviours. This can also explain why

married respondents (most of them men) are likely to access safe water. Because of gender roles in most societies, women usually take care of the family water needs. Long distances to water sources and a lack of knowledge on the availability of alternative safe water sources are barriers to safe water since households may not have the time to walk such long distances which may expose females to harassment. Consumers who can afford, are likely to treat their water as a precautionary measure. However, most people rely on previously declared 'safe water' sources, and they use their unfortunately unreliable sense of smell and a visual check to verify water quality.

The installation of a safely managed sanitation system is heavily influenced by the capacity, resources, land availability and skills of the households to do so.

Figure 3: Construction of household Toilets in Minorga

Perceived consequences for not having safely managed sanitation motivates households to construct standard septic tanks.

The Municipal piped systems are leaky and sewage lines are not connected to any treatment plant, as such sewage often flows straight into open drains. Hence the problem of untreated raw sewage around the household environment remains. However, there is little motivation to improve and invest in better sewage disposal systems even within the home. Reliance on the piped systems has meant people see the entire process as a government/municipal responsibility rather than a common and shared responsibility between the household and the service provider, making it difficult to propose interventions in this area.

Households value solid waste disposal in order to avoid bad smells, untidy environment and the proliferation of diseases. However, most of them only care about their direct household environment and believe that anything outside their yards is the Service Provider's responsibility. Despite the desire and willingness to dispose of solid waste at designated places, lack of service provider capacity to offer reliable emptying/clearing services demotivates consumers. This has led to most consumers resorting to indiscriminate dumping or burning of waste causing air pollution.

Poor relationship that exists between service providers and consumers exacerbates WASH conditions in urban areas. SPs believe that customers are satisfied with the services and feedback mechanisms in place. However, most consumers interviewed expressed dissatisfaction with the WASH services and complaint/feedback mechanisms put in place by the SP which they believe are ineffective and that SP's do not genuinely care about their needs. If service providers could improve their engagement with citizens/customers and be more responsive, there is high probability that service users will reciprocate by paying for the services. Guided by the research findings, the following recommendations for SPs (Box 2) are proposed for a future SBCC campaign in urban Pakistan.

BOX 2: STUDY RECOMMENDATIONS FOR SERVICE PROVIDERS

- *Urban WASH service providers (SP's) should use the behavioural determinants identified in this report to improve their engagement with consumers and instil a sense of responsibility among them.*
- *WASH education programs should focus on helping people realise the severity and consequences of access to poor WASH services/environment as this will trigger communities to adopt positive WASH behaviours.*
- *SP's should provide multiple safe water sources close to communities to ensure easy access for everyone, in particular for those who may not have the time to look for alternative water sources after work. SP's should provide communities with communal waste collection points which are regularly emptied/cleared on daily basis. This will provide households with waste disposal points and regular collection will instil confidence within communities about the service providers, thereby improving the working relationship.*
- *SP's should educate communities on the harmful side effects of burning solid waste through a vibrant communication campaign coupled with regular collection of waste from communal points.*
- *When communicating with consumers, SP's should also consider multi-occupancy as well as residents who rent their dwellings; these consumers are likely to have different behavioural determinants when it comes to WASH investments, hence they will need different approaches.*
- *SP's should use community gatherings to encourage customer participation in WASH services,*
- *SP's should work on creating a positive experience with their customers by acknowledging complaints and providing responses to consumers' complaints, to encourage future engagement.*
- *SP's should use informal, in-person complaint mechanisms as these are more likely to encourage the desirable behaviour*
- *SP's should use the topic of access to safe water to encourage consumer engagement in the feedback system*

SP's should use a positive narrative campaign to remove the stigma that complaints are likely to cause retribution.

Conclusion

The objective of this research was to assess behavioural determinants for key urban WASH practices. Findings of the study will inform the development of an urban WASH SBC strategy, to promote the adoption of the key behaviours in urban Pakistan. This study has found that overall, there is demand amongst consumers in urban Pakistan for improved WASH services, although this demand may vary according to gender, income and pre-existing knowledge of the WASH services providers, their role and responsibilities. An important behavioural driver is the consumer's awareness and knowledge of the negative health and environmental effects of insufficient WASH services.

Going forward, UNICEF can support and catalyse the actions of the service providers towards the recommendations, strengthening the capacity of urban service providers in Pakistan to encourage positive WASH behaviours amongst its communities. The development of evidence-based SBC strategies aimed at improving sustainable access to WASH services in urban areas, should inform future urban WASH behaviour change programming for UNICEF, service providers and partners. These strategies should streamline an understanding of the behavioural barriers of specific target groups and support design solutions that take these into account. These strategies can serve as guidelines at national and provincial levels and more specifically for urban service providers at municipal levels.

Future SBC efforts should benefit greatly from the insights provided by the study on the behavioural determinants of the WASH users, as well as the best communication channels (interpersonal) to use to promote behavioural change. The SBCC program should ensure they target women, as they are often more directly involved in WASH issues at the household and community level when compared to men. It will be crucial to ensure both the messaging style, and the communication channels are adapted for women to receive this information and to respond to it.

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UNICEF's water, sanitation and hygiene (WASH) country teams work inclusively with governments, civil society partners and donors, to improve WASH services for children and adolescents, and the families and caregivers who support them. UNICEF works in over 100 countries worldwide to improve water and sanitation services, as well as basic hygiene practices. This publication is part of the UNICEF WASH Learning Series, designed to contribute to knowledge of good practice across UNICEF's WASH programming. In this series:

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