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Unpacking WASH Behaviours among Mothers: Analyzing Knowledge and Practices

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Abstract

Access to clean drinking water, basic sanitation facilities, and good hygiene practices are fundamental for their health and overall development. As primary caregivers, mothers play a critical role in ensuring these components are accessible and implemented effectively. In this context, this study assesses the mothers' awareness and practices related to water, sanitation, and hygiene (WASH). This study only focused on mothers of children who are under five in age. The study mainly emphasizes uncovering discrepancies between the awareness and actual practices.

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The findings reveal a significant disparity between knowledge and practice, particularly regarding water purification methods, which are often not implemented despite awareness. Most mothers relied on traditional practices, with boiling being preferred among those who purified water. Sanitation practices were generally commendable, as all households had toilets and maintained a higher standard of cleanliness than anticipated. Additionally, there was a strong recognition of the importance of proper disposal of child feces and regular hand washing with soap, particularly after cleaning feces. However, practices like hand washing at critical times, such as before feeding, were not consistently aligned with the level of knowledge.

Keywords: WASH, water treatment, hand washing, sanitation

Background

Water, sanitation, and hygiene (WASH) are essential elements in preventing different diseases including diarrheal, yet they are often undervalued and insufficiently addressed in many contexts (Abdul et al, 2020). As per the WHO (2015), approximately 663 million people across the world do not have access to safe drinking water. Furthermore, while certain water sources may be classified as improved, inadequate efforts in their operation and maintenance can lead to contamination, ultimately making the water unsafe for human consumption (WHO, 2011). This issue is further exacerbated by the fact that microbial contamination is not limited to the source but frequently occurs during the collection process, transportation, and subsequent storage of water within households (Wright et al. 2004). According to Bain et al. (2014), people who consume contaminated drinking water worldwide is about 1.9 billion, underscoring the critical need for robust interventions in water safety and hygiene practices.

One third of the population of the world lacks access to improved sanitation facilities. Due to the lack of proper sanitation systems,

about 13% of them have no choice but to defecate in the open. A significant proportion of people in South Asian and Sub-Saharan African countries depend on open defecation as their main way of disposing of waste, as these regions have the lowest levels of sanitation coverage (WHO, 2015). This situation underscores the significant inequalities in access to sanitation and the pressing need for focused solutions in these areas.

Contrasting water and sanitation, hygiene has a larger number of indicators to look upon. In this regard, hand washing and hand washing with soap are given priority, compared to others (Sah et al, 2017). At present, there is no global monitoring system for hand-washing practices at various levels, including households and communities. Moreover, obtaining reliable and consistent data on hand washing with soap on a global scale remains a difficult task. However, a study conducted by WHO (2015) revealed that people who wash their hands after coming into contact with waste is 19 %. This signifies the gap in hygiene practices.

Unsafe water, poor sanitation, and insufficient hygiene practices cause the deaths of 1.5 million people worldwide each year. Most



of them are children. This is a serious public health issue, impacting the well-being of countless individuals globally. Similarly, 35% of deaths in children under five years old worldwide are due to underweight. This makes it a major contributor to child mortality. Additionally, nearly half of the cases of underweight are linked to frequent diarrhoea and infections from intestinal worms. These health problems are mainly caused by unsafe drinking water, poor sanitation, and not enough hygiene practices. Consequently, childhood underweight, driven by these factors, is directly responsible for approximately 70,000 deaths annually (Pruss et al., 2008).

The WASH Status Report (2016) indicates that 87% of Nepal's population has access to water. Among those with access, around 52% rely on piped water systems as their primary source of drinking water. However, a relatively small proportion of the population, only 16%, was reported to have access to drinking water services that met the criteria for being safely managed. The number of people having access to safely managed sanitation services in Nepal is approximately 51%. It shows a significant gap in sanitation coverage. Furthermore, 64% of households were reported to have handwashing facilities with soap and water (UN Water, 2022). It is also found that, 11% of all child mortality is attributable to diarrhea. One of the main causes of undernutrition in children in this age group is diarrhea, which severely impacts their ability to maintain proper nutrition. In addition, undernutrition is responsible for a substantial percentage of child mortality, accounting for about one-third to one-half of all child deaths. This descriptive study examines the level of knowledge about WASH among mothers of children under five years old, as well as the WASH behaviours practised by these mothers.

Methods

A descriptive study was used to evaluate the knowledge and practices of mothers with children under five regarding WASH and to analyze the gap between the two. The study was conducted in a Municipality near the Kathmandu Valley. Such a municipality was chosen for the study because it is close to Kathmandu and has connections to urban life as well. This will help understand how rural areas, which are close to and influenced by urban areas, affect WASH behaviours. For this purpose, 50 mothers of children under the age of five were chosen purposively as the respondents.

A questionnaire was used to gather information regarding awareness and practices of WASH among mothers. The mothers having children under 5 years of age were selected as the respondent for the study. The structured questionnaire was used for the study. All mothers were asked the questions with full consent, following proper ethical guidelines. The questionnaire was designed to collect information regarding WASH behaviours in different areas such as waste management, use and storage of water, knowledge and practice of cleaning toilets, etc.

Findings

Source of water and water purification

Water, an indispensable element of WASH, plays a fundamental role in maintaining life and health. A significant number of illnesses that affect children under the age of five are directly connected to water quality and usage. For this reason, it becomes critically important to gain a thorough understanding of water use and to adopt safe and appropriate practices. In this context, this session tries to give clear overview, including the various sources of water, the level of awareness and common practices regarding water treatment options, and the proper methods for storing treated water to ensure its safety for consumption. For the study, water sources are categorized on the basis of their use for drinking and household purposes. Among the respondents, 57% relied on spring water for drinking, while 43% used tap water showing no notable variation between the two categories. Concerning the distance to water sources, 47% of respondents had water available within their property whereas 52% needed to travel distance of 10 to 15 minutes, and one percent of the respondents stated that it takes them about 30 minutes to fetch water.

Among the respondents surveyed, a majority, accounting for 60%, expressed the belief that water should undergo treatment before being consumed to ensure its safety. Of them, the majority boiled water daily while 20 per cent boiled water on alternate days and 10 per cent replied that they boiled water as required. In contrast, 40% of the respondents stated that they did not consider water treatment necessary before drinking. When examining actual practices, it was observed that only 38% of the respondents consistently treated their drinking water using one or more of the point-of-use (POU) options available at the household level. Within this group, a smaller proportion, constituting 22%, reported treating their water only occasionally rather than as a regular practice. Those who do not treat water before consuming expressed that they have no idea about water treatment and water purification techniques. This is why they do not treat water before consuming it. However, some expressed that they have ideas but due to the time-consuming process, they do not prefer it.

Boiling water and Storage

The data reveals various reasons why people choose to boil water. The most frequently mentioned reason is that they believe that boiling water kills germs making water safe for drinking. A smaller group of seven respondents boil water specifically for their baby, reflecting concerns for infant health and safety. Three individuals associate the practice with maintaining overall good health, while 14 others have adopted it as a regular habit. Additionally, nine respondents prefer to boil water to enjoy it warm, and three boil it as a precautionary measure when someone in the household is unwell. These responses collectively highlight a range of motivations for boiling water, with health and safety being the predominant concerns.

The study reveals a diverse range of storage practices for treated water, reflecting varying preferences and resource availability among respondents. While plastic bottles are a popular choice,

used either exclusively or in combination with other vessels as mentioned by the majority of the respondents, a significant number (20%) also rely on jugs and various other containers for storage. However, the reliance on plastic containers highlights a potential area for awareness campaigns on the safe and sustainable storage of treated water, particularly concerning hygiene and environmental impacts.

Knowledge and practice regarding cleaning toilet

There is clear awareness among all respondents about the necessity of maintaining toilet hygiene, reflecting a strong understanding of its importance. Similarly, it is found that there is strong awareness among all respondents regarding the importance of washing hands after handling a child. However, there is a notable gap between knowledge and consistent practice. While a majority adhere to daily cleaning routines, a significant portion of respondents clean their toilets less frequently, and some do so only on a need-based schedule. This inconsistency in practices may pose risks to maintaining optimal hygiene and preventing sanitation-related issues. The conclusion highlights the need for targeted interventions or awareness programs to encourage more regular and consistent toilet cleaning habits among all groups to align their practices with their knowledge of hygiene requirements.

While the majority wash their hands consistently, a significant portion still wash their hands only when necessary or occasionally, and a small percentage (5%) do not wash their hands at all, despite knowing the importance of the practice. This discrepancy suggests that while awareness is high, behaviour change efforts may be needed to encourage more consistent handwashing among all respondents. Public health initiatives focusing on reinforcing the importance of regular handwashing could help address this gap and improve hygiene practices.

| Practices of Cleaning Toilet | | Practices of Hand Wash after Handling Baby | |
|------------------------------|------------|--|------------|
| Frequency | Percentage | Frequency | Percentage |
| Every day | 60 | Every Time | 80 |
| Alternative day | 25 | As Per Need | 25 |
| Once a Week | 10 | Some Time | 10 |
| As Per Need | 5 | NO | 5 |

Knowledge and practice regarding hand washing after handling baby faces and disposal of degradable waste

When respondents were asked whether they knew about the importance of washing their hands after handling child feces, 90% of mothers said they were aware that it was necessary. Similarly, when asked about their hand-washing habits, 80% of mothers reported always washing their hands after handling child feces where as 10 % reported that they wash their hand occasionally.. This shows that the vast majority of mothers are aware of proper hygiene practices and are following them in their daily lives. However, it is noteworthy that 10% of mothers still don't wash

their hands after cleaning their child's feces. This highlights the need to educate and encourage this small group of mothers about the importance of hand hygiene after handling child feces.

The respondents also shared differing views about how degradable waste should be managed. Among all the respondents, 60 % said that degradable waste should be used to make manure, while 40 % believe it should either be disposed of or simply thrown away without care. However, the actual practices of the respondents were somewhat different from their opinions. In practice, 40 % admitted to throwing degradable waste haphazardly, making it the most common behaviour. This was followed by 35% of respondents who reported they use it to make manure and 25% who said they burn the waste. These findings suggest that while many respondents are aware of more sustainable waste management practices like making manure or using pits, a significant number still throw and burn waste carelessly, indicating a gap between awareness and practice. This further underlines the need for community-focused waste management programs to encourage better practices. The majority of respondents demonstrated awareness of the importance of washing hands at critical times, such as before feeding their children and after using the toilet. However, a smaller proportion of mothers reported washing their hands before cooking, indicating that this area of hygiene practices could be improved.

| Practices of hand washing after handling baby faces | | Practices of disposal of degradable waste | | | |
|---|----------|---|----|------------------------|----|
| | | Actual Knowledge | | Actual Practice | |
| Frequency | % | Frequency | % | Frequency | % |
| Wash their hand Every time | 90 by 80 | Used to make manure | 60 | Used to make manure | 35 |
| Wash their hand Occassionally | 10 | Throw away | 40 | Throw away haphazardly | 40 |
| Do not wash | 10 | - | | Burn it | 25 |

The responses regarding non-degradable waste disposal showed minimal differences between what people believed and what they practised. Most respondents, 80 % stated that non-degradable waste should be collected in a designated common area. Another 15 % of respondents believed it was acceptable to dispose of such waste by throwing it carelessly. A small number of respondents i.e. 5% also mentioned other disposal methods, such as burning the waste or burying it in a pit, indicating some diversity in their views on proper waste management.

In practice, their actions were largely consistent with their beliefs. Of the total —78 % of respondents collecting non-degradable waste at a common location, while 16 % admitted to throwing the waste haphazardly and 6 % reported that they buried or burned it. These results reveal that most individuals act according to their



understanding of proper disposal, though some still engage in improper practices, such as careless dumping. This shows the need for awareness programs to promote environment friendly waste disposal and reduce harmful waste practices.

Discussion

The study aimed to evaluate the knowledge and practices of WASH (Water, Sanitation, and Hygiene) behaviours among mothers of children under five in rural municipalities nearby Kathmandu Valley, Nepal. It also sought to identify the gaps between the mothers' understanding and their practical application of WASH behaviours in daily life. A total of 50 mothers participated in the study, which was conducted through structured interviews. The results indicated that while most mothers had a good understanding of WASH practices, their actions did not always align with their knowledge. For example, although many mothers were aware of water treatment methods, fewer treated their drinking water. The main reasons given were the belief that untreated water was safe and the lack of a habit of treating it. Of those who did treat water, boiling was the most commonly adopted method.

A key positive finding was that all the mothers had access to sanitation facilities. Nearly all practiced proper hygiene, such as the safe disposal of child feces and washing their hands with soap after handling feces. Additionally, the majority of respondents understood the importance of washing hands at critical times, such as before feeding their children and after using the toilet. However, fewer mothers practised hand washing before cooking, indicating an area where hygiene habits could be improved. Waste management, however, presented significant challenges. Most mothers lacked proper knowledge about waste segregation and disposal, leading to haphazard disposal of waste. This suggests that waste management remains a critical area requiring attention and improvement.

Despite the existing gaps in some areas, the overall WASH practices among the mothers were considered satisfactory. This was reflected in the low number of diarrheal diseases among children, suggesting that the positive hygiene habits followed by the mothers were playing a significant role in promoting better health for children in the community. The study emphasizes the importance of continuous education and training to help bridge the gap between knowledge and actual practices. It suggests that focusing on specific areas such as water treatment and waste management through targeted programs could lead to further improvements in WASH behaviours. These improvements would contribute to better health outcomes, particularly for children under five, ensuring they benefit from healthier living conditions and reduced risks of waterborne diseases.

Conclusion

This study highlights a significant gap between the knowledge and actual practice of WASH behaviors among mothers in rural municipalities near the Kathmandu Valley. While the mothers demonstrated a strong understanding of key WASH practices, they

did not consistently implement them in their daily lives. Despite recognizing the importance of safe water, handwashing, and sanitation, many mothers failed to adopt these practices fully, particularly at critical times. The findings underscore the necessity for targeted programs and interventions aimed at bridging this gap. By focusing on encouraging the practical application of WASH knowledge, these initiatives could help foster healthier behaviors, ultimately reducing the risk of waterborne diseases and other health issues related to sanitation.

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