How Message Perception Influences Wash Behaviour Practices Among Mothers of Under-Five Children in Lagos Urban Slums

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Abstract

Poor Water, Sanitation, and Hygiene (WASH) practice enables the spread of diseases causing high U-5 children mortality rates in developing countries like Nigeria. Access to WASH facilities, knowledge, perception, attitude, and other influencing factors becomes important in determining WASH practices. Therefore, this study, guided by Health Belief Model, assessed WASH practices among mothers of U-5s in Lagos urban slums relative to their knowledge, perceptions and attitude. This cross-sectional study used cluster and purposive sampling techniques for data collection from 365 respondents in the study areas. A structured questionnaire was used in survey for data collection on the knowledge, perceptions, attitude and WASH practice. The study found that the mothers had good knowledge and favourable attitude to WASH behaviour messages, but had poor WASH practices. Only few mothers used improved water sources and stored drinking water safely. Although, most of the mothers treated home drinking water, hand washing practice with clean water and soap was poor. They disposed of their waste in canals, river, open dumpsites as well as buried waste around their environment. Most of the mothers practiced open defecation, and they had poor knowledge of the severity of poor WASH on their children's health. The respondents had favourable perceptions but poor WASH practices in Lagos urban slums. Sociodemographic characteristics significantly influenced their WASH practices, and limited WASH facilities were the barriers. The study recommends increased education for mothers through participatory approaches in distinct WASH programmes. They should have access to economic empowerment to enable them make better WASH decisions.

Keywords: Water, Hygiene, Urban Slum, Mothers, Message Perception, Health Belief

Background to the Study

Safe Water, Sanitation, and Hygiene practices (WASH) are essential determinants of health and well-being (WHO, 2022), and are considered a human right. Yet, poor WASH causes over 13,800 under-five deaths daily globally (UNICEF, 2023), while over 70,000 under-five children die annually in Nigeria, where children in poorer communities are disproportionately affected by poor WASH (UNICEF, 2020). Despite the devastation from poor WASH, as at 2020, 2.2 billion people used contaminated water sources, three billion had no handwashing facilities, over 1.7 billion did not have basic sanitation facilities and over 673 million people still did open defecation and poor WASH is linked to the transmission of diarrheal diseases (UNICEF, 2021).

Improved access to safe water, sanitation facilities, good hygiene practices and adequate education for needed information on WASH behaviour would reduce susceptibility to disease burdens causing illnesses and deaths. But, many countries' inability to make available these basic provisions leave the people with burdens of poor WASH (CDC, 2022). Sadly, Nigeria tops the list of five countries where half of all under-five deaths occurred in 201. The other countries, according to the death figures, are India, Pakistan, the Democratic Republic of Congo and Ethiopia, with Nigeria and India accounting for almost a third of all deaths (WHO, 2020). But in 2016, India topped the list of countries with the highest U-five mortality figures, while Nigeria was second (UNICEF, 2016).

However, Rijsberman and Zwane (2012) call attention to development of technology to support affordable sanitation facilities. Others (Ordinioha and Owhondah, 2008); (CASSAD, 2010), and (Brannlund, Hammarstrom and Strandh, 2013) call for adequate education of mothers of U-5s to address poor WASH practice. Having knowledge that could influence perception and attitude to WASH is very important, because adequate information and favourable perceptions could help mothers seek safe water, safely store drinking water, treat drinking water at home, and have good sanitation and hygiene behaviours, as against poor knowledge that could affect mothers' perceptions and practice of good WASH (Sridha, Okareh & Mustapha, 2020).

But, knowledge and provision of facilities may not address the problem of poor WASH behaviour (Massi &Webster, 2013). According to Mkonnen and Mekonnen's (2003) study in Ethiopia, it may be around demographic and sociocultural factors, which influenced the respondents' WASH practices. Erroneous beliefs could also prevent mothers from good WASH practices (McLennan, 2000). For Laverack (2017), attention must be given to workable behaviour change communication approaches and a strong policy framework to empower people to have control over healthy lifestyle decisions that they would make. Cultural sensitivity and risk perception should be a focus in WASH behaviour change sensitisation and intervention (Anthonj et al.,2022).

The 2019 Water, Sanitation and Hygiene National Outcome Routine Mapping (WASH NORM) survey result shows only 16% of households in Lagos State with access to basic hygiene services, 61.5% to safely managed water sources, 28% to safely managed sanitation, and only 3.5% of people in the households likely washing hands with soap and water at critical times (WaterAid, 2022). This reality makes it important to establish what urban slum communities of Abete,

Ago-Egun, and Maracana would be doing with WASH, being informal dwellings characterised by limited access to safe water, sanitation and hygiene facilities, which exposes people to environmentally-induced epidemics (Elias, 2018).

Meanwhile, it is important to consider how the required WASH behavior change message is communicated to the target audiences. Educating mothers on issues around safe water, sanitation demands and hygiene practices must adopt the most-appropriate channels of communication, the content of the WASH messages, after adequate research must have been done, and choices of the sources to engage the target audience in the learning sessions (Ngigi & Busolo, 2018).

This cross-sectional descriptive study was carried out in three Lagos urban slums; Abete is in Apapa Local Government Area and under Lagos Central Senatorial District; Ago-Egun is in Somolu Local Government Area and under Lagos East Senatorial District; and Maracana is in Ajeromi-Ifelodun Local Government Area under Lagos West Senatorial District. The population of Lagos State is currently approximated at 15.4 million, with projections that about 24.4 million people will be living in Lagos by 2035 (Statista, 2022). The study's population consisted of mothers of U-5 children who live in the selected slum communities. The slum communities were purposely selected from clusters of the documented nine Lagos urban slums. The study made reference to a previous work documenting the number of established slum communities, done by Elias et al. (2018, p. 28).

Methodology

The study applied Cluster sampling and Purposive sampling techniques. The identified nine critical communities and their Senatorial Districts are Agege (Lagos West), Ajegunle (Lagos West), Amukoko (Lagos West), Badia (Lagos Central), Ijeshatedo/Itire(Lagos Central), Bariga, Ilaje, Iwaya, Makoko (Lagos East). Since Lagos has three Senatorial districts, the study picked one slum community from each of the three clusters having a total of nine slum communities to arrive at three slum communities;⅓ x 9= 3.

According to Barbie (1986), in Cluster sampling, the population elements (mothers of U-5 in Lagos urban slums) are already grouped into subpopulations (Lagos urban slum communities), and a list of those subpopulations exit or are created, and each of the lists would then be sampled. Purposive sampling was used to select the actual slum communities based on their common characteristics of being along coastal locations. Inclusion Criteria: Only women who lived in the

select communities were qualified, plus the additional requirement of being mothers of children who are under-five years. The slum communities selected and their senatorial districts are Abete; within Badia (Lagos Central), Maracana; within Ajegunle (Lagos West), and Ago-Egun; within Ilaje (Lagos East).

According to Owuamalam (2012), "the purposive sampling technique is a situation where the judgment of the researcher is the deciding element on who should be selected as a sample. This method takes into cognizance, the peculiar characteristics common to the population from which sample is to be drawn." To get the number of respondents in each of the communities, the researcher relied on community leaders, who helped with identifying mothers who had U-5 children. They did so, based on their knowledge of the people in the respective communities. The sample size of this study is 365 respondents.

Data Collection Instrument

The study used a 36-item pretested questionnaire in an interview-administered style with the respondents. Questionnaires usually consist of items worthy of investigation and which can be administered to the respondents (Slattery et al., 2012). The questions included demographic questions, perception questions as guided by the Health Belief Model, and questions to elicit information regarding the mothers' awareness and practice of WASH.

The questionnaires were administered by two research assistants who were duly trained and could communicate in both Yoruba and Pidgin English languages. The population in these communities are predominantly Yoruba, and other mixed tribes who understand and communicate in Pidgin English. The research assistants worked closely with the researcher.

Data Analysis

The data obtained from the questionnaire were analysed using the IBM Scientific Package for Social Sciences (SPSS 26) software, and were presented in simple tables of frequencies, percentages and bar charts. The test of association of the socio-demographic characteristics with knowledge and practice of WASH among the mothers was done, and binary logistic regression analysis was employed to identify perceived susceptibility and practice of WASH among mothers of U-5s in Lagos urban slums.

RESULTS

Respondents' Socio-Demographic Characteristics

A majority of the mothers were aged between 30-34 years, and married. There were a few teenage mothers. Some of the mothers were single, some divorced and some others widowed. The mothers mostly had primary school education and were mostly petty traders. Others were full-time housewives. The respondents were predominantly of the Yoruba tribe and practiced Islamic religion. There were a few Igbos and Hausas and a mix of other minority tribes.

Extent of Mothers' Exposure to WASH behaviour change messages

A pooled mean of 4.43 shows that mothers of U-5s in Lagos urban slums had much exposure to WASH behaviour change messages.

Communication Approach Used in Sensitising Mothers on WASH in Lagos Urban Slums

Most of the mother got the WASH behavior messages through an interpersonal communication approach by the health workers at the community health facility. A good number of them received the messages through community announcers, friends and family members. However, the mothers mostly preferred community leaders as information and message dissemination sources on WASH behaviour change rather than turning to the mass media. They said that they always had more access to community leaders for information.

Table 1: Perceptions of Respondents to Water, Sanitation and Hygiene (WASH) messages

Items	Option	Freq.	%	Mean	SD	Remark	Total
Unsafe water can cause illness in children	Positive	325	90.0				
	Neutral	36	10.0				
	Negative	0	0.0	2.90	0.300	Positive	361
Children can die from disease burdens caused by unsafe drinking water	Positive	212	58.8				
	Neutral	36	10.1				
	Negative	112	31.1	2.28	0.907	Neutral	361
You can treat drinking water at home by yourself	Positive	181	50.0				
	Neutral	108	30.0				
	Negative	72	20.0	2.30	0.781	Neutral	361
Good WASH practice is expensive	Positive	260	72.0				
	Neutral	48	13.3				
	Negative	53	14.7	2.57	0.734	Positive	361
Good WASH	Positive	219	60.8	2.37	0.845	Neutral	361

practice keeps a child healthy	Neutral	55	15.1				
	Negative	87	24.1				
Handwashing is not correct without using soap	Positive	221	61.3				
	Neutral	55	15.1				
	Negative	85	23.6	2.38	0.840	Neutral	361
Limited access to WASH facilities inhibits good practice	Positive	318	88.2				
	Neutral	0	0.0				
	Negative	43	11.8	2.76	0.648	Positive	361
Open defecation endangers children's health	Positive	256	70.8				
	Neutral	36	10.0				
	Negative	69	19..2	2.52	0.795	Positive	361
Pooled Mean				2.51	0.731	Positive	361

Perceptions and Attitudes of the mothers to WASH behaviour change messages

Most of the respondents had good knowledge of the risk associated with the exposure of children to unsafe water, but had poor knowledge of the severity of the risk associated with unsafe drinking; they did not think that a child could die as a result of disease burdens caused by unsafe drinking water.

At least half of the respondents were confident of treating home drinking water and agreed that good WASH practice could keep a child healthy. They agreed that open defecation endangers children's health, and expressed good knowledge of proper handwashing practice. They perceived that good handwashing practice is expensive and that limited access to WASH facilities inhibits good WASH practice.

Table 2: Practice of WASH by the mothers of U-5s in Lagos urban slums

Water Supply Source	**Freq.**	**%**
Piped Water	55	15.2
Borehole System	106	29.4
Water Truck Vendors	137	37.9
Water Tanker Vendors	63	17.5
Water Storage Patterns		
Drum with lid	160	44.3
Containers without lid	201	55.7
Home Drinking-water Treatment Practice		

Purification with Alum	243	67.3
Filtration with cloth	81	22.4
No Treatment	37	10.3
Handwashing Practice		
After toilet use	118	32.7
After cleaning baby's excreta	87	24.1
Before cooking	25	6.9
Before feeding baby	312	86.4
Before and after eating	360	99.7
After cleaning environment	280	77.6
Handwashing method		
With soap and water	81	22.4
With only water	280	77.6
Toilet Use		
Pit Latrine with cover	94	26.0
Water Closet system	44	12.2
No Toilet	223	61.8
Refuse disposal Patterns		
Open dumpsites	122	33.8
Throwing into a canal/river	132	36.6
Using to fill up marshy areas	107	29.6

WASH practices among mothers of U-5 Children in Lagos Urban Slums

In practice, only few mothers used piped drinking water sources. Majority of the mothers got their water from borehole, water truck vendors, and water tanker vendors (17.5%). More mothers stored drinking water poorly, although they mostly treated their drinking water at home using alum and doing filtration with cloth (22.4%). Meanwhile, fewer mothers washed their hands with water and soap at critical times. Over three quarters of the mothers washed their hands with only water. While some of the respondents used pit latrine with cover, a majority of them used no type of toilet facility. They disposed of their waste at open dumpsites and into canals and river. Others used the waste to fill up marshy areas in the environment.

Factors that Promoted WASH Practice among Mothers of U-5s in Lagos Urban Slums

The respondents complained about lack of access to potable water, lack of sanitation facilities, lack of money to buy soap. Some others lamented a lack of understanding of the WASH messages, saying they were inhibitive factors to their

WASH practise. They sort for more engagements with the community leaders .The test of association of the sociodemographic characteristics with knowledge and practice of WASH among mothers of U-5s in Lagos urban slums revealed a significant influence of age, level of education, marital status, religion, ethnicity and occupation on knowledge and practice of WASH among mothers of U-5s in Lagos urban slums at chi-square value = 22.440 ($p<0.05$), 48.362 ($p<0.05$), 34.087 ($p<0.05$), 14.810 ($p<0.05$), 6.309 ($p<0.05$) and 35.507 ($p<0.05$).

The dependent variable (Knowledge and Practice of WASH = PWASH) is a binary variable based on scale (No and Yes) and took the value (No = 0, Yes = 1). The sociodemographic variables were used to determine knowledge and practice of WASH among mothers of U-5s in Lagos urban slums.

DISCUSSIONS

Most of the respondents (90.0%) were knowledgeable about the susceptibility of children to illnesses due to unsafe water, just as Berhe et al. (2020) found that 95% of respondents in rural Tigray region of Northern Ethiopia had good knowledge of the benefits of safe water consumption. The CDC (2022) notes that adequate exposure to hygiene education and access to WASH facilities, can prevent illnesses caused by disease burdens.

The respondents (31.1%) however had poor knowledge of the severity of the risk associated with unsafe drinking water to the health of U-5 children. This is similar to findings by Ogwezzy-Ndisika and Oloruntoba (2016) that over half of the mothers of U-2 children in a study in Lagos had a poor perception of the risk susceptibility their children were exposed to if not breastfed exclusively.

They mostly (89.2%) had positive attitudes to safe water messages, yet only 15.2% used piped taps; 29.4% from borehole systems, and a majority from unimproved water supply sources; truck water vendors (37.9%), and water tanker vendors (17.5%). This is contrary to findings by Pathak et al. (2015), where 87.9% of the 206 mothers of U-5 children surveyed in an urban slum of Butwal sub-metropolitan city in Nepal used improved water sources. Meanwhile, Sridhar et al. (2020) found that 52.5% of the respondents in their study used surface water in selected local government areas of Kaduna State, Northwestern Nigeria.

They treated drinking water with alum (67.3%), filtration with cloth (22.4%), and 10.3% did not treat drinking water at home. They said that they believed their water was from safe sources. Tripathy, Acharya, and Karmee(2017) in Odisha,

one of India's urban slums, found that most of the respondents (68.5%) did not practice any form of home drinking water treatment.

In storage of drinking water, 55.7% used containers without covers. Similar study by Bartram, Corrales, Davison, Deere, Drury, Gordon, et al. (2009) canvases for adequate water safety plans, particularly with drinking water containers. The respondents lacked adequate knowledge of handwashing importance. Only 22.4% practiced handwashing with water and soap, which is a better result compared to Adeyemi and Ajibade's findings (2018) where only 7.8% of the respondents in Alimosho, Lagos, washed their hands with soap and water. This can also relate to the WaterAid Report (2022) of a 2019 Water, Sanitation, and Hygiene National Outcome Routine Mapping (WASH NORM) survey findings that only 3.5% of household members in Lagos State are likely to do proper handwashing with water and soap at critical times.

61.8% of the respondents did open defecation; used pit latrines with covers (26.0%), and water system closet (12.2%). And in waste disposal, practise was poor as (36.6%) dispose of their waste in the river and canal; 33.8% dispose of waste at open dumpsites, and 29.6% used the refuse to fill up marshy areas within their environment. Similarly, Fagariba and Song (2016) found that many people living in slum areas of Accra, Ghana, did open defecation, and 16.3% buried solid waste within the living areas.

Age, level of education, occupation, and marital status have a significant influence on knowledge, perceptions, and practices of WASH among mothers of U-5 in Lagos urban slums. Other factors like limited access to WASH facilities and lack of economic empowerment and poor knowledge were found to inhibit good WASH practice.

Conclusions and Recommendations

The mothers of under-five children in Lagos urban slums have favourable perceptions and attitudes to WASH behaviour change messages, but that did not translate into good WASH practices. They have poor knowledge of the severity of risk associated with unsafe water, drinking water storage, open defecation and waste disposal; which expose U-5 children to disease burdens causing illnesses and death. This was in spite of the heavy WASH behaviour messages they were exposed to. Significantly however, the messages appeared to be mere information dissemination than critical engagements with the target audience. The mothers need adequate education through participatory communication engagements with

community leaders. WASH facilities should be provided, and WASH programmes be held more frequently at community level. There should be a network of mothers for sustainable WASH; mothers should be taught how to make tippy-taps, local soaps for handwashing.

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