



Practice of Effective Hand Washing and Associated Factors among Caregivers of Infants Attending Infant Welfare Clinics in Ado-Ekiti, Ekiti State, Nigeria

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Authors' contributions

This work was carried out in collaboration between all authors. All authors read and approved the final manuscript.

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ABSTRACT

Introduction: Effective hand washing has been shown to reduce the incidence of some infectious diseases especially diarrhea and respiratory diseases among infants and under five children. The aim of this study was to assess the practice of effective hand washing and associated factors among caregivers of infants in Ado Ekiti, Nigeria.

Methodology: The study was carried out between October and November, 2016 among caregivers of infants attending selected health facilities in Ado Ekiti, Ekiti-State, Nigeria. It employed a descriptive cross sectional method of survey. Multistage sampling technique was used to select 422 caregivers of infants. Pre-tested semi-structured interviewer administered questionnaire and an observational checklist were used for collecting data from the recruited

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participants. SPSS version 20 was used for data analysis. The level of significance was set at $P < 0.05$.

Results: A total of 387 caregivers participated in the study. About 89.9% of the respondents had good knowledge of hand washing, while 7.5% and 2.6% of the respondents had fair and poor knowledge respectively. Similarly, about 77.3% of the respondents had positive attitude towards the practice of effective hand washing. However, less than one third (31.5%) of the respondents were observed to be practicing effective hand washing. The study also revealed that knowledge and attitude of respondents towards hand washing were significantly associated with the practice of effective hand washing among the caregivers.

Conclusion: The study revealed that the knowledge of hand washing was generally high among the caregiver while the observed practice of effective hand washing was generally low. It also revealed a gap between self-reported practice and observed practice of hand washing. Knowledge and attitude of caregivers towards hand washing were identified as significant factors associated with the practice of effective hand washing while behavioural change communication was recommended for caregivers.

Keywords: Hand washing; Diarrhoea disease; infants; caregivers.

1. INTRODUCTION

Human hands are one of the chief vehicles for transmitting infections especially diarrheal and respiratory diseases which are the leading causes of infant and under-five mortalities in developing countries [1]. Regular hand washing is therefore one of the best ways of preventing the spread of these infections and can save millions of lives annually [2].

Hand washing with soap and water has been shown to be the most cost effective health intervention to reduce both the incidence and prevalence of diarrhea and respiratory diseases in children [3,4]. Many children acquire respiratory infections, gastrointestinal illnesses and skin infections when hands that are contaminated by pathogens touch their nose, mouth and eyes either by themselves, mothers and or the caregivers at homes, crèches or schools [5,6].

Hand washing interrupts the transmission of disease agents and so can significantly reduce diarrhea and respiratory infections, as well as skin infections and trachoma [7]. Simple interventions such as effective hand washing has been shown to reduce the incidence and prevalence of diarrheal diseases by preventing the transmission of a variety of pathogens [8]. Despite the knowledge of this fact, many of children's caregivers are still not washing their hands effectively, hence the need to assess the barriers responsible for this [6,8-10].

According the National Demographic and Health survey of 2013, about 69 out of every 1000 live

births in Nigeria die before they reach the age of one year [11]. Diarrhea and respiratory diseases remain the leading contributors to this high mortality rate. Studies have shown that hand washing with soap and water can reduce the incidence and prevalence of these diseases [6,12]. Despite this scientific evidence in support of hand washing, the practice of hand washing is still low among mothers in Nigeria [9].

In a study among mothers in Edo state, Nigeria, only 34.3% of mothers were found to have good hand washing practice [8]. Many studies have also revealed some factors acting as barriers to hand washing especially at critical moments – the most important of these are; inadequate facilities for hand washing (e.g. soap, clean water, towel/ electric hand drier), poor techniques of hand washing and low knowledge of the critical periods for hand washing [13,14].

In Nigeria, most of the previous studies on hand washing were focused on health workers, while those involving caregivers or children rarely included structured observation in their methodologies. However, the findings of Tobin et al in Edo State (not too far away from Ado Ekiti), that only about a third of mothers had good hand washing practice and the revelation that some of those who claimed to be washing their hands did not have a place for hand washing in their houses during the Multiple Indicator Cluster Survey in Nigeria prompted that a gap could exist between self-reported practice and observed practice of hand washing [3,8]. The studies above laid the foundation for the current study which aims to assess the practice of effective hand washing and associated factors among

caregivers of infants attending infant welfare clinics in Ado Ekiti, Nigeria. It utilized structured observation to build on the deficiencies of the previous studies.

2. METHODOLOGY

This study was carried out between October and November, 2016 among caregivers of infants attending selected health facilities in Ado Ekiti metropolis in Ekiti State, South-west, Nigeria. It utilized a cross sectional analytical method of survey. Ado Ekiti, is an urban metropolis and the State capital of Ekiti State, Nigeria, with a population of 308,621 [15]. The study population consisted of caregivers of infants attending infant welfare clinics in Ado Local Government Area of the State, which was estimated to be about 12,344 using an estimate of 4% of the general population. Only caregivers with babies of age less than one year were included in the study, while caregivers with acutely sick babies were excluded from the study.

A minimum sample size of 384 for the study was obtained using the Fishers formula [16] at a prevalence of 48% obtained from a previous study in Nigeria [3]. This was increased to 422 to compensate for non- response.

Two-stage sampling technique was used for the study. In stage-1, from a list of health facilities in the LGA, three health facilities were randomly selected by balloting. In stage-2, every third caregiver on the daily patients register was selected using the systematic sampling, until the sample size was reached. Semi-structured interviewer administered questionnaire was used in collecting data from recruited participants. An observational checklist was also used for data collection. Section A of the questionnaire was on socio-demographic variables, section B was on the knowledge, attitude and practice of hand washing among the caregivers, while Section C was on barriers to effective hand washing. After interviewing each participant, they were made to engage in hand washing the way they do under normal circumstances, and a research assistant collected data, using an observational check list.

Data was collected by trained interviewers (CHEW) over a period of two months. Collected data was cleaned and inputted for analysis using the statistical package for social sciences (SPSS) version 20. The outcome variables were the levels of knowledge, attitude, and hand

washing practice at critical times. Scores were given to each outcome variable to categorize each respondent's knowledge as good, fair or poor using the following cut off: less than 40% as poor, between 40 and less than 50% as fair and 50% and above as good. Attitude and practice were scored as: Poor(Negative) for scores less than 50% and score of 50% and above were recorded as good(Positive). Proper or effective hand washing was determined by a score of at least six out of seven possible scores during structured observation (which must include the use of soap and water) in addition to the respondents reporting to have ALWAYS been washing hands with soap and water at ALL the critical times as well as availability of reliable and clean water supply in their houses. Chi square test for independence was used to determine associations between effective hand washing and other variables. Results were presented with the aid of tables and charts. The level of significance was set at $P < 0.05$.

An approval for the research was obtained from the ethical committee of Ekiti State University Teaching hospital (EKSUTH), while permission to conduct the study was obtained from the officers in charge of the selected PHC facilities. Informed consent was obtained from each of the participants prior to the commencement of the study.

A major limitation of the study was the fact that the respondents were aware they were being observed, hence the possibility of Hawthorne bias during the structured observation: the caregiver may exaggerate their hand washing practices.

3. RESULTS

A total of 387 mothers/caregivers participated in the study (response rate of 92%). About 72% of the caregivers were between 25-34yrs of age with a mean age of 29.6 ± 5.0 years. About 98% had at least a primary education. In addition, about 94% of the caregivers were married, 88.9% were Yoruba while only about 7% were unskilled workers (as shown in Table 1).

About 40% of the respondents were living in either a room or a room and parlor apartment (see Fig. 1). Almost half of the respondents sourced their water from boreholes (see Fig. 2), while about 33.9% rated their water supply as unreliable.

3.1 Knowledge

About 91.8% knew that hand washing could prevent the spread of diarrhea diseases, while about (328) 84.8% knew hand should be washed with soap and water at all the critical periods for hand washing. About 75.5% of caregivers correctly identified all the six critical periods for hand washing from a list of several options. After scoring the respondent's knowledge, 89.9% of

the respondents had good knowledge of hand washing, while 7.5% and 2.6% of the respondents had fair and poor knowledge respectively.

3.2 Attitude

Hand washing with soap and water was not a stressful procedure to about 87% of respondents, while about 79% agreed that individuals

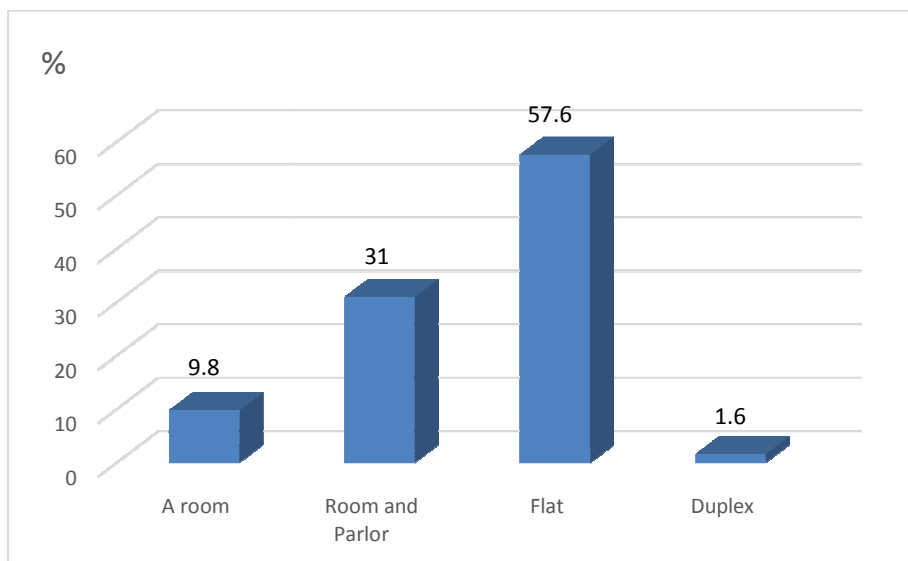


Fig. 1. Type of accommodation

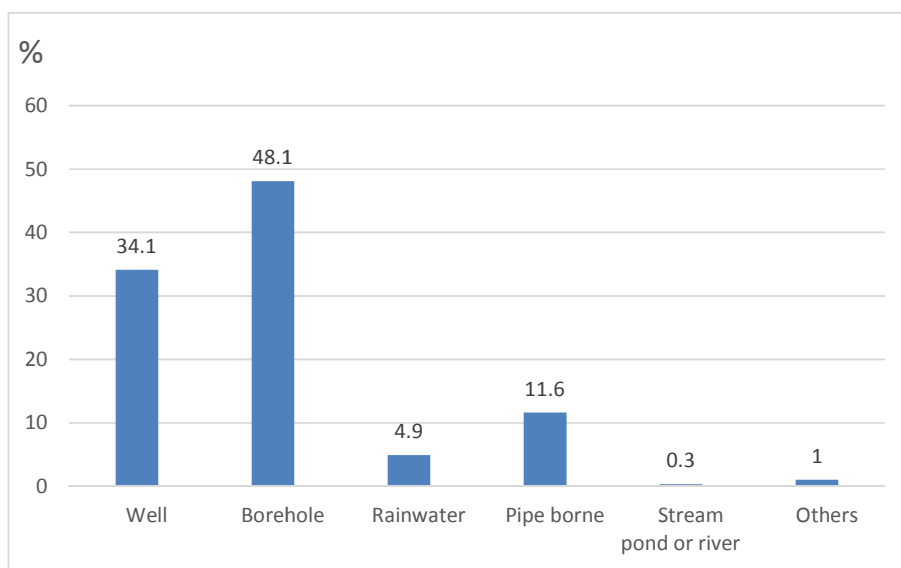


Fig. 2. Respondents main source of water

should always look for means of washing their hands with soap and water even when facility for hand washing are not easily available. Whenever facilities for hand washing were not available, about 87.1% of respondents always feel uneasy, while about 16.2% would skip hand washing when busy because it is time consuming. In the same vein, about 90% of the respondents claimed they would always wash their hands if all the facilities for hand washing are provided and easily accessible. Similarly, about 20.4% considered it a stressful venture if hands must be washed at all the critical periods every day. More than half (52%) of the respondents agreed that 'it is purely the responsibility of Government to provide hand washing facilities'. Generally, about 77.3% of the respondents had positive attitude towards the practice of effective hand washing.

Table 1. Socio-demographic characteristics of respondents

Variables	Frequency	Percent
N=387		
Age group		
Less than 25 yrs	55	14.2
25-34 yrs	277	71.6
35 and above	55	14.2
Educational level of caregivers		
None	6	1.6
Primary	13	3.4
Secondary	96	24.8
Tertiary	272	70.3
Religion		
Christian	366	94.6
Muslim	21	5.4
Marital status		
Married	364	94.1
Not married	23	5.9
Tribe		
Hausa	1	.3
Igbo	42	10.9
Yoruba	344	88.9
Occupational group		
Skilled	133	34.4
Unskilled	26	6.7
Semi-skilled	228	58.9

3.3 Practice

When mothers were specifically asked about their hand-washing practice at the critical periods or junctures, 95.9% reported hand-washing after defecation and 95.3% reported washing hands after cleaning a child's bottom. About 96.4% of mothers reported washing hands before cooking

food. About 94.1% of caregivers said they washed their hands before feeding a child, while about 90.7% said they wash their hands before eating. The lowest rate of hand-washing was before administering drugs to babies with about 81.1% respondents embracing this practice as shown in Table 2.

Table 2. Self-reported practice of hand washing at critical times

Variable	Frequency	%
N=387		
After changing babies diapers or cleaning a child's bottom	369	95.3%
After using the toilet	371	95.9%
Before preparing food	373	96.4%
Before feeding the child	364	94.1%
Before eating	351	90.7%
Before administering drugs to the child	314	81.1%

Generally, only about 75.5% reported using soap and water for hand washing at all at the critical junctures. However, despite the availability of all the facilities for hand washing during structured observation, only about 50% of the respondents used soap for hand washing, while a lower proportion (about 31.5%) of the respondents were observed to have gone through all the important hand washing steps during structured observation (as shown in Fig. 3).

As shown in Table 3, only the attitude of the respondents and their knowledge of the critical times for hand washing were statistically significantly associated with the practice of effective hand washing among the respondents, while none of the socio-demographic variables showed any significant association with the practice of effective hand washing.

On the barriers to effective hand washing, about 36.7% of the respondents reported that relevant agencies, health facilities, ministries and organizations were NOT doing enough to promote hand washing. Similarly, about 33.9% of the respondents reported that none availability of reliable water supply at house level makes hand washing sometimes difficult for them. About 26.6% of the respondents lacked soap and other basic facilities for hand washing in their homes, while about 29.7% of the respondents reported that it was difficult getting a place to learn proper hand washing technique.

4. DISCUSSION

The study revealed that only about one third of the respondents were practicing effective hand washing. This agrees with what was obtained by Tobin et al. [8] in a study conducted recently in Edo State. Similar findings have also been reported in Ghana [17] and Bangladesh [18]. As expected, self-reports of hand-washing with soap were much higher than those observed, probably because people tend to report what they think is acceptable and not what they are actually practicing when asked about their practice. However, the introduction of structured observation reduced the effects of this bias as shown by the observation that only about a third of the respondents were observed to have actually followed all the essential steps in effective hand washing. This buttresses the fact that hand washing surveys should include observation as a method of data collection, since people tend to exaggerate their practice on a matter that is generally considered acceptable in a society [19]. This study also revealed that knowledge of hand washing was a significantly associated with the practice of effective hand washing. However, the fact that the level of knowledge of hand washing among the respondent was generally good with about 90% of the respondents having good knowledge of hand washing, while only about one third of the respondents were practicing effective hand washing showed that knowledge of hand washing alone was not enough.

Similarly, attitude of the respondents towards hand washing was also shown to be determinant of effective hand washing with a higher proportion of those washing hands effectively among those with Good(Positive) attitude compared to those with poor(Negative) attitude (see Table 3). However, majority (about 65%) of those with good attitude were not practicing effective hand washing. These findings concur with findings from studies in Nigeria and other countries [5,8,20]. This could be because other barriers may exist which might have prevented those with good attitude from practicing what they believed.

In addition other barriers identified in this study include; inadequate hand washing facilities in their homes especially absence of reliable clean water supply at household level (about 34% of respondents reported this), while about 27% reported that soap was not always available for hand washing in their homes. Without a commensurate increase in the proportion of people having access to a reliable clean water supply at household level as well as easy access to soap for hand washing purposes, effective hand washing practices among caregivers could still be a mirage [4,21,22].

More than one fourth of the respondents reported that they were not aware that Government and other agencies were doing enough to promote hand washing in their locality and that they have never seen any hand washing demonstration anywhere before the survey.

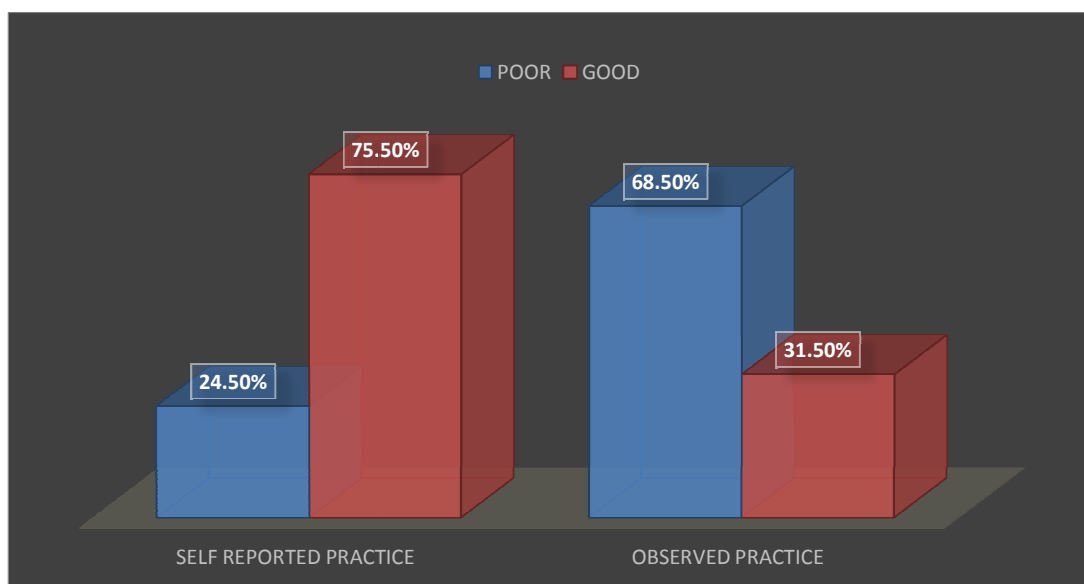


Fig. 3. Practice of effective hand washing among respondents

Table 3. Association between effective hand washing and selected variables

N=387		Practice of effective hand washing		Statistics
		No	Yes	
Age group	Less than 25 yrs	32(58.2%)	23(41.8%)	$\chi^2=5.102$ df=2, $P=0.078$
	25-34 yrs	190(68.6%)	87(31.4%)	
	35 and above	43(78.2%)	12(21.8%)	
Type of accommodation	A room	26(68.4%)	12(31.6%)	$\chi^2=0.860$ df=3, $P=0.835$
	Room and parlor	86(71.7%)	34(28.3%)	
	Flat	149(66.8%)	74(33.2%)	
	Duplex	4(66.7%)	2(33.3%)	
Occupational group	Skilled	87(65.4%)	46(34.6%)	$\chi^2=1.176$ df=2, $P=0.556$
	Semi-skilled	17(65.4%)	9(34.6%)	
	Unskilled	161(70.6%)	67(29.4%)	
Tribe	Hausa	0(0.0%)	1(100.0%)	$\chi^2=3.997$ df=2, $P=0.136$
	Igbo	25(59.5%)	17(40.5%)	
	Yoruba	240(69.8%)	104(30.2%)	
Educational status	None literate	5(83.3%)	1(16.7%)	$\chi^2=0.623$ df=1, $P=0.430$
	Literate	260(68.2%)	121(31.8%)	
New marital status	Married	248(68.1%)	116(31.9%)	$\chi^2=0.335$ df=1, $P=0.563$
	Not married	17(73.9%)	6(26.1%)	
New religion group	Christianity	251(68.6%)	115(31.4%)	$\chi^2=0.034$ df=1, $P=0.854$
	Islam	14(66.7%)	7(33.3%)	
Attitude	Poor attitude	72(81.8%)	16(18.2%)	$\chi^2=9.394$ df=1, $P=0.002^*$
	Good attitude	193(64.5%)	106(35.5%)	
Knowledge of critical time for hand washing	Poor	8(80.0%)	2(20.0%)	$\chi^2=7.350$ df=2, $P=0.025^*$
	Fair	26(89.7%)	3(10.3%)	
	Good	231(66.4%)	117(33.6%)	

* Significant at $P<0.05$, χ^2 =Chi square, df=degree of freedom

5. CONCLUSION

This research has established that knowledge and attitude of caregivers towards hand washing with soap and water at critical times are significantly associated with the practice of effective hand washing. It was also discovered that though the knowledge of hand washing with soap and water at critical times was generally high among caregivers, the rate of compliance to the practice of effective hand washing was still low among caregivers of infants, while poor compliance with the technique of hand washing constituted a major barrier to the practice of effective hand washing among the caregivers. It is recommended that efforts should be concentrated on removing the barriers to effective hand washing such as provision of safe and reliable water supply, and behavioural change communication.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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