

**Original article**

## **Hand washing practices among mothers of children under 5 Years of age in rural areas of Kamrup District, Assam**

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**Abstract:**

**Introduction:** Mother's regular hand washing practice is an important measure to prevent the spread of childhood diarrhoea and ARI. Still hand washing with soap is not a universal practice in India. Therefore health education of mothers regarding hand washing with soap (HWWS) is a necessary intervention. As an initial step before starting any health education activities we conducted this study with the objectives of studying the hand washing practices of mothers and to study the factors influencing the practices in a rural setting in Assam.

**Methodology:** It was a community based cross sectional study conducted among 325 mothers from 13 villages in a rural block. We interviewed those mothers using predesigned pretested schedule and the data analysed in appropriate software.

**Results:** We found 247(76%) mothers regularly practised hand washing with soap (HWWS) after defecation and 172(53%) mothers practiced HWWS after cleaning the child. Only 93(28.6%) mothers were practising HWWS before breast feeding, while HWWS was practiced by 185(57%) mothers before feeding the child. A statistically significant association was found between mother's educational status and practice of HWWS during childcare. We also observed that mother's HWWS practice during childcare leads to reduced incidence of diarrhoea in children.

**Conclusion:** Our study findings includes high percentage of mothers practised hand washing with soap after defecation, but percentage of mothers practising HWWS was relatively low while feeding the child and before breast feeding. These findings strongly indicate importance of health educational program targeting the mothers.

**Key words:** Hand washing practice, Hand washing with soap, Diarrhoea, under 5 children, Cross sectional study, breast feeding.

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**Introduction:**

Diarrhoea is one of the leading causes of death among children globally. Diarrhoea is responsible for death of 1 in 9 child deaths worldwide. More than 0.7 million children are dying every year due to diarrhoea in the world. India is contributing more than a lakhs child death every year to this. [1] Major chunk of these deaths can be attributed to inadequate hand washing. Therefore proper Hand washing with soap after defecation or before the preparation of food reduces diarrhoeal diseases and acute respiratory infections. Hand washing with soap is an important measure to prevent the spread

of diarrhoea, ARI and other infectious diseases as it act as a barrier and protect the children from harmful pathogens. [2] Mother's Hand washing practices also helps in reduction of malnutrition among children as evidence from recent studies. [3] Assam is one of the states in India where infant mortality and child mortality rates are very high, also having high percentage of childhood malnutrition. Diarrhoea and ARI contribute major portion of these deaths or morbidities. [4, 5] Therefore health education of mothers in this region regarding hand washing with soap (HWWS) is a necessary intervention for reduction of

diarrhoea and related diseases. This is also going to help in reducing high infants and childhood mortality. But before initiating any such program we need specific data on hand washing practices among the mothers of young children in Assam. But there are very few studies available on this important subject from North East India and Assam. **Aims and objectives:** Therefore we conducted this study with the objectives of studying the hand washing practices of mothers of children under 5 years of age and to study the factors influencing the practices in a rural setting of Kamrup district of Assam.

**Methodology:**

Our study was a community based cross sectional study conducted in a rural block of Kamrup district of Assam. This Bako Bongaon Development Block is a rural block consisting of 140 villages and is situated around 80 km west of capital city of Guwahati. For our study we first randomly choose 3 numbers of Sub Centres (SC) in this block, and then we selected all the villages under those three SCs. There we total 13 numbers of villages under those 3 SCs. From each village we randomly selected 25 respondents who fulfilled the inclusion criteria. So total 325 mothers were selected for our study . Each mother was interviewed in her own home after obtaining informed consent using pretested and predesigned semi structured schedule. The data collected from these interviews compiled, refined and tabulated using Microsoft Excel software. For statistical analysis SPSS software version 18 was used.

**Inclusion criteria:** any women who was a permanent resident of the village and who gave informed consent to be part of our study and who was a mother of a child under five years of age.

**Exclusion criteria:** Mothers not giving consent, not permanent resident of the village, incomplete information were excluded from our study.

Study period: from January to August 2013

Definition used:

Hand washing with soap (HWWS): Only those mothers who regularly wash hands with soaps for minimum 1 minute of time are considered as practising HWWS. Those mothers who wash hands with soaps only occasionally or use any other material other than soap for hand washing were excluded from HWWS classification.

**Results:**

In our study we interviewed total 325 mothers in 13 villages over six months of time. From our study we came to know about different valuable information on hand washing practices among mothers of under 5 children in rural areas. In table 1 we found out of the 325 mothers 258 of them (79.3%) belonged to the age group of 20 to 29 years. While 25(7.8%) were teenage mothers and 42(12.9%) were 30 years or older. Out of 325, 10.5% mothers were illiterate, 17.2% studied up to primary school, 27% were educated up to middle school while 37.2% were educated up to high school or above. 234 of them were housewives (72%), while 36 (11.3%) mothers were daily wage labourers, 169(52%) mothers belonged to joint families while 156(48%) belonged to nuclear families. Of the total 325 mothers 197(60.6%) had 2 to 4 numbers of children while 83(25.5%) had only one child and 45(13.9%) mothers had more than 4 children.

From table 2 we came to know that 247(76%) mothers washed their hands with soap and water after defecation and 78(24%) used only water. While 172(53%) mothers practiced HWWS after cleaning the child but 23(7%) mothers did not practice hand washing. We found that only 125(38.4%) mothers practiced HWWS before cooking while 230(70%) mothers did not practice hand washing before handling food for the family and the child. HWWS was practiced by 185(57%)

mothers before feeding the child while 120(37%) mothers use only water for hand washing before feeding the child. Only 93(28.6%) mothers were found to be practising HWWS before breast feeding their children in our study.

On analysis of relationship between certain socio demographic factors and practice of HWWS during childcare in table 3 we came to know that regular practices of HWWS were more among younger mothers (58%). Practice of HWWS was found to be increasing with educational status and socioeconomic status of the mother. In nuclear families practice of hand washing with soap by mothers was more (61.5%) than the joint families (47.3%). On applying chi square test we came to know that though during childcare HWWS was practiced more by younger mothers and those living in nuclear families but the relationships were not statistically significant. No statistically significant relationship was found also between hand washing practices and socioeconomic status of the mother. While statistically significant association was found between mother's educational status and practice of HWWS during childcare.

We also study the relationship between incidence of diarrhoea among children and HWWS practices of their mothers during childcare (table 4) and we found that those mothers who practiced regular HWWS their children (62.6%) were either free from diarrhoea in the last 1 month or had fewer episodes of diarrhoea (48%) than those children whose mothers not practised HWWS regularly. On statistical analysis statistically significant association was found between mother's HWWS practice during childcare and incidence of diarrhoea in children.

#### **Discussion:**

Hand washing practices of mothers influence the health of their children in many ways. Multiple

studies have shown that washing hands with soap can reduce the risk of diarrhoeal diseases by 42–47% and this simple intervention of HWWS might save a million lives every year. [6] Proper hand washing practices also helps in reduction of Respiratory tract infections among children. [7] Therefore health education regarding hand washing with soap is a priority intervention among the mothers of young children in a country like India. In our study practice of hand washing with soap among mothers was found to be 76% after defecation but this practice of HWWS was only 57% before feeding the child. This showed the vulnerability of the children due to lack of simple practices in homes. Aithal K.S et al found a very high percentage of mothers (90%) practicing hand washing with soap after defecation but only 38% practised hand washing before feeding the child. [8] While Scott BE et al found that only few mothers practice HWWS. [9] Similarly multiple studies had showed that hand washing with soap after defecation or handling of child's stool is still far from universally practiced. The global prevalence of hand washing with soap was estimated at 19% by a systematic review after compiling 42 studies all over the world. [10] We found that only one third mothers practiced HWWS before cooking food while two third mothers did not practice hand washing before handling food for the family and the child. It might be due to the lack of health education of mothers in rural areas. Earlier studies have indicated the same. Datta SS et al, Yerpude PN et al in their studies observed that most mothers in rural and slum areas felt that washing hands with water is sufficient. [11,12] Pati S et al though observed that more than 70% mothers washes hands before cooking and serving food. [13] Hand washing practice before breast feeding was found to be poor among the mothers in our study. Mother's lack of knowledge regarding

mode of spread of infections to child might be contributing to this practice.

In our study we found statistically significant association between education of the mother and proper hand washing practices during childcare. Education leads to proper knowledge of hand washing practices and understanding of harms of not washing hands therefore it influence good hygiene practices of the mothers. Shukla M et al in their study also found a relationship between mother's educational status and good hand hygiene practices. [14]

The study also analysed the relationship between incidence of diarrhoea among children and mother's hand washing practices and found that those mothers who practised hand washing with soaps their children had less episodes of diarrhoea. This relationship was also found to be statistically significant. It showed the importance of hand washing in reduction of diarrhoea among children and associated mortality. Freeman MC et al also found similar observations in their analysis. [10]

One of the lasting complications of diarrhoea is malnutrition, Diarrhoea and malnutrition is a vicious cycle always. Therefore hand washing is incorporated along with safe water and sanitation as essential interventions for reduction of malnutrition globally and is part of national nutritional programs in many countries. [15] Similarly hand-washing practice is being promoted among children in India through the school hygiene program and mass media campaign on "the hand-

washing day" as a preventive strategy for diarrhoea and malnutrition. [16] But most programs are yet to include mothers of young children as part of their health education program.

**Conclusion:**

Current evidence from various studies and Meta analysis suggests that the promotion of hand washing with soap in homes of developing countries should become a public health intervention of choice involving all the shareholders, but still it is not being implemented on ground. [6] One of the major obstacles is the lack of data regarding hand washing practices among mothers in rural areas. Our study was a small step in this regard. In our study conducted in a rural setting of Kamrup district of Assam we found that a very high percentage of mothers practices hand washing with soap after defecation but still this practice is not universal, percentage of mothers practicing HWWS is relatively low while feeding the child or handling food. Practice of HWWS was lowest before breast feeding. These findings from our study strongly indicate importance of health educational program targeting the mothers. Swachh Bharat Abhiyan (Clean India Mission) the national program launched by govt of India is a step in right direction to make safe water, sanitation and hygiene universal and accessible. Health education of mothers on proper hand washing might be a valuable addition to this program which in turn would definitely help in improving the health of young children of India.

**Table 1:** Socio-demographic profile of the mothers of children under 5 years of age

<b>Variable</b>	<b>Numbers (n=325)</b>	<b>Percentages (%)</b>
<b>Age of the respondent</b>		
Less than 19 years	25	7.8
20 to 29 years	258	79.3
30 years or more	42	12.9
<b>Education</b>		
Illiterate	34	10.5
Up to primary school	56	17.2
Up to Middle school	88	27
High school and HS	121	37.2
Graduate and above	26	8.1
<b>Occupation</b>		
Housewife	234	72
Govt/private jobs	43	13.2
Business	12	3.5
Daily wage labourer	36	11.3
<b>Socioeconomic status</b>		
Upper and Upper middle	20	6.2
Lower middle	212	65.2
Lower class	93	28.6
<b>Type of family</b>		
Nuclear	156	48
Joint	169	52
<b>Number of children</b>		
Only 1	83	25.5
2 to 4	197	60.6
More than 4	45	13.9

**Table 2:** Distribution of respondents according to hand washing practices in different situations

Variable	Not practicing hand washing (%)	Hand washing only with water (%)	HWWS (%)
After defecation	-----	78 (24)	247 (76)
After cleaning child's bottom	23 (7)	130 (40)	172 (53)
Before cooking	55 (17)	145 (44.6)	125 (38.4)
Before handling food	230 (70.8)	95 (29.2)	-----
Before feeding the child	20(6)	120(37)	185 (57)
Before breast feeding	45(13.8)	187 (57.5)	93 (28.6)

**Table 3:** Distribution of mothers according to socio demographic characteristics and practice of HWWS during child care

Variable	Not practising HWWS (n=140)	Practising HWWS (n=185)	Chi square test
<b>Age of the mother</b>			$\lambda^2=0.94$
Up to 29 years	119 (42%)	164 (58%)	Statistically not significant
30 years or more	21 (50%)	21(50%)	
<b>Education of the mother</b>			$\lambda^2=38.89$ P<0.001
Illiterate or primary	56(62.2%)	34 (37.8%)	<b>Statistically significant</b>
Up to middle school	48 (54.6%)	40 (45.4%)	
High school or above	36 (24.5%)	111 (75.5%)	
<b>Socioeconomic status</b>			$\lambda^2=2.8$
Upper class and upper middle	5 (25%)	15 (75%)	Not significant
Lower middle	93 (43.8%)	119(56.2%)	
Lower class	42 (45.1%)	51 (54.9%)	
<b>Type of family</b>			$\lambda^2=2.606$
Joint	80 (47.3%)	89 (52.7%)	Not significant
Nuclear	60 (38.5%)	96 (61.5%)	

Table 4: Relationship between mother’s hand washing practices and incidence of diarrhoea among children in last 1 month

	Not practising HWWS (n=140)	Practising HWWS (n=185)	Chi square test
No episodes of diarrhoea	73 (37.4%)	122 (62.6%)	$\lambda^2 = 6.32$ P=0.01 Statistically significant
At least one episode of diarrhoea	67 (51.5%)	63 (48.5%)	
Total	140	185	

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