

Sanitation and hygienic practices of young children in rural area of Assam

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ABSTRACT


Background: Assam, one of the North Eastern States of India contributes significantly to the high national child mortality rates. Hygienic practices are very important for a child's well-being and influence mortality. **Objectives:** Our study was conducted with the objectives to assess the sanitary and hygienic practices of under-five children in a rural community of Assam and to analyze the factors influencing the sanitation and hygienic practices of young children. **Materials and Methods:** It was a community-based cross-sectional study conducted among 360 under-5 children from rural areas of Kamrup district, Assam. The parents of the children were interviewed and sanitation, hygienic practices of the children and caregivers were observed. The data thus collected were analyzed using Microsoft Excel and SPSS version 18. **Results:** Most children (54.7%) were in the age group of 3–5 years while rest 45.3% were <3 years of age. Regular bathing, handwashing, wearing of clean cloths, and trimming of nails were the common hygiene practices followed by 60% of children. Education of mother and child's hygiene practice was found to be statistically related ($P < 0.001$). Statistically significant relationship was found between family type and hygiene practices ($P = 0.02$). **Conclusion:** The findings from our study indicate the scopes for betterment of sanitation and hygiene practices of rural children to reduce childhood morbidity and mortality.

KEY WORDS: Child Health; Infant Mortality; Hand Disinfection; Toilet Facilities; Water Supply; Rural Population

INTRODUCTION

Safe water, sanitation, and good hygiene practices are very essential for optimal health of a human being. Proper growth and development of a child also influenced by safe water sanitation and hygiene (WASH). Existing evidence suggest that lack of access to WASH can affect a child's health in many ways. A child who has no or inadequate access to safe water sanitation and proper hygienic practices like handwashing with soap are more likely to suffer from diarrheal diseases, intestinal parasite infections, and environmental enteropathy,

leading to high malnutrition, morbidity, and mortality of under-5 children.^[1] The World Health Organization estimated that 5.9 million young children die each year due to infectious diseases and malnutrition, large portion of these deaths is preventable with appropriate WASH strategies.^[2,3] In India, yearly 1.7 million children (55 deaths/1000 live births) die before they can reach their fifth birthday which is well above the Millennium Development Goal 4 target of reducing under-five mortality <40/1000 live births.^[4,5] Assam, one of the North Eastern Border States of India contributes significantly to the high national child mortality rates.^[6] Recent National Family Health Survey 4 revealed that in Assam, infant mortality rate is 48, under-5 mortality rate is 56, 36% of children are stunted, and 30% of children are underweight.^[7] Therefore, it is very important that we do research work on the various factors that are responsible for high child mortality and malnutrition in Assam. Since hygienic practices are very important for a child's well-being, hence we conducted this study with the following objectives in a rural community of Assam, as rural

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children are more vulnerable than their urban counterparts from malnutrition, diarrheal diseases, and various morbidity conditions during the first 5 years of live.

Aims and Objectives

The objectives of this study were to assess the sanitary and hygienic practices of under-five children in a rural community of Assam and to analyze the factors influencing the sanitation and hygienic practices of young children.

MATERIALS AND METHODS

Our study was conducted in the Kamrup rural district of Assam. We had randomly selected a Community Development Block (Dimoria Developmental Block) in the district suitable for our study. For our study, whole Dimoria Community Development Block was divided into four quadrants across the two sides of National Highway No 37. From each quadrant, three villages were selected randomly by lottery method. From each village, 30 eligible children in the age group of 1–5 years were selected, making 90 children from one quadrant and 360 children in total. In case, the required sample of 30 children from one village was not found, the next adjoining village was taken. Hence, a total of 360 children were selected for our study. Since the study was part of the postgraduate thesis project of the author, therefore requisite permission from the Institutional Ethics Committee, Gauhati Medical College was obtained.

Inclusion Criteria

A child in the age group of 1–5 years whose parents were permanent residents of the village and they gave informed consent to be part of the study were included in the study.

Exclusion Criteria

Those children whose age was undetermined, parents gave incomplete information, not gave consent were excluded from the study. The parents of the selected children were interviewed in their home using predesigned and pre-tested semi-structured questionnaire. Sanitation, hygienic practices of the children and caregivers in the family were observed by the investigator in the home setting. The data thus collected were compiled, refined, tabulated, and analyzed using statistical software MICROSOFT EXCEL and SPSS version 18.

Definitions and Variables Used in Our Study

The first part of the questionnaire used in the study consisted of sociodemographic information of the children, education and socioeconomic status of parents and housing, water supply, and sanitation. Then, the parents were queried about child's hygienic and sanitary practices such as bathing and teeth cleaning, if hands were washed after defecation and

before meals, materials used for handwashing. Every child was also assessed by investigators to evaluate the cleanliness of the child. A checklist was used for clean clothing, clean hand, trimmed fingernails, and clean hair. Children who were found to be following the below mentioned hygienic practices correctly and regularly were classified as having proper hygiene practices: If used pre-boiled/filtered water for drinking, using sanitary latrines, hair, and nails were trimmed and cleaned, bath and brush teeth regularly, practices handwashing after defecation and before taking food, wear clean cloths, and individual cleanliness of the child were found adequate by the investigator.

RESULTS

We had a study population of 360 children in the age group of 1–5 years. These children and their parents were interviewed and observed by investigators in their homes and some important findings emerged regarding the sanitation and hygiene practices of the rural children.

As described in Table 1, of the total of 360 children, 145 (40.2%) were male and rest 59.8% were female. Most children

Table 1: Background information of our study population ($n=360$)

Variable	Number (%)
Age of the children (years)	
1–<3	163 (45.3)
3–5	197 (54.7)
Sex	
Male	145 (40.2)
Female	215 (59.8)
Number of siblings	
Nil	98 (27.2)
Up to 2	173 (48)
More than 2	89 (24.8)
Type of family	
Nuclear	207 (57.5)
Joint	153 (42.5)
Religion	
Hindu	249 (69.2)
Muslim	68 (18.8)
Christian	43 (12)
Education of mother	
Illiterate and up to primary school	91 (25.2)
Up to middle school	176 (48.9)
High school and above	93 (25.9)
Socioeconomic status	
Upper and upper middle	61 (17)
Lower middle	108 (30)
Lower class	191 (53)

(54.7%) were in the age group of 3–5 years. Of 360 children, 207 (57.5%) were from nuclear families and the rest from joint families. Majority of the children 249 (69.2%) were Hindu by religion while 18.8% were Muslim and rest 12% were Christian. Mother's education plays an important role on hygiene practices of children; therefore, we inquire about educational status of the mothers and found that 91 (25.2%) mothers were educated up to primary school only while 176 (49%) were educated up to middle school and 26% of mothers had completed high school or above. Most of the families (53%) belonged to lower socioeconomic class and only 17% belonged to upper and upper middle socioeconomic class.

In Table 2, we described the water supply and sanitation facilities of the families as these are very important factors influencing the hygiene practices of the children. The study revealed that municipal supply was main source of drinking water supply for most families. We found that most families do pre-treatment of water before drinking. 41.7% used boiling and 23% used water filter, but 35% did not use any method of purification before drinking. Methods of excreta disposal were also analyzed and we found that most families (57.5%) had sanitary latrine in their homes, but 25% had insanitary excreta disposal and 15% of families were found to be practicing open-field defecation.

It was observed in our study as showed in Table 3 that daily tooth cleaning was practiced by 53.61% of children, hair was clean in 64.72% of children, 65.55% of mothers bathe their children regularly, and nails were clean in 81.94%. For 64.44% of children, hands were washed with soap and water after defecation while only 10.56% of children, hands were washed with soap and water before taking food. Clothing was found to be neat in 90.83% of children.

In Table 4, we analyzed relationship between sanitation and hygiene practices of young children with different influencing factors. We classified the children according to their hygiene practices and we found that a total of 214 (60%) children were following proper hygiene practices while the rest of the children were not following (40%) proper hygiene practices.

We analyzed the relationship of gender and proper hygiene practices of children and found that proper hygiene practices were slightly more among male children (60.7%) than the females (58.6%) which might indicate preferential treatment of male children by parents though the difference was not found to be statistically significant ($P = 0.69$). We also found that hygiene practices were followed by younger children more (61.3%) than the older children (57.8%) though it was not found to be statistically significant ($P = 0.57$). While analyzing the relationship between education of mother and proper hygiene practices of children, we found that percentages of children having good hygiene practices were more among those mothers who had better education. This relationship between education of mother and child's hygiene

Table 2: Distribution of children according to water supply and sanitation facilities in their homes ($n=360$)

Variable	Number (%)
Source of water	
Tap water	126 (35)
Well	78 (21.7)
Tube well	91 (25.3)
Surface water source	65 (18)
Purification of drinking water	
None	127 (35.28)
Water filter	83 (23.05)
Boiling	150 (41.67)
Excreta disposal	
Household sanitary latrine	207 (57.5)
Household insanitary latrine	90 (25)
Community latrine	07 (2)
Open-field defecation	56 (15.5)

Table 3: Distribution of children on the basis of hygiene practices

Hygiene practices	Number (%)
Tooth cleaning	
Daily	193 (53.61)
Irregular	126 (35.00)
Never	41 (11.39)
Hair	
Clean	233 (64.72)
Dirty	27 (35.28)
Bathing	
Regular	236 (65.55)
Irregular	24 (34.45)
Nails	
Clean	295 (81.94)
Dirty	65 (18.06)
Handwashing after defecation	
With soap	232 (64.44)
With mud	15 (4.16)
With plain water	88 (24.45)
None/not applicable	25 (6.95)
Handwashing before food	
With soap and water	38 (10.56)
Plain water	240 (66.66)
None/not applicable	82 (22.75)
Clothing	
Neat	327 (90.83)
Dirty	33 (9.17)

practice was found to be statistically significant ($P < 0.001$). Statistically significant relationship was also found between type of family and hygiene practices of children ($P = 0.02$)

Table 4: The relationship between sanitation and hygiene practices of young children with different influencing factors

Variable	Proper hygiene practices (n=214)	Not proper hygiene practices (n=146)	Chi-square test	P value
Sex of the child				
Male	88 (60.7)	57 (39.3)	0.775	0.69 not significant
Female	126 (58.6)	89 (41.4)		
Age of the child (years)				
1–<3	100 (61.3)	63 (38.7)	0.316	0.57 not significant
3–5	114 (57.8)	83 (42.2)		
Education of the mother				
Illiterate and up to primary school	34 (37.4)	57 (62.6)	41.584	<0.001 statistically significant
Up to middle school	102 (58)	74 (42)		
High school and above	78 (83.8)	15 (16.2)		
Socioeconomic status				
Upper and upper middle	41 (67.2)	20 (32.8)	1.972	0.37 not significant
Lower middle	61 (56.5)	47 (43.5)		
Lower class	112 (58.6)	79 (41.4)		
Numbers of siblings				
Nil	67 (68.4)	31 (31.6)	22.370	<0.0001 statistically Significant
Up to 2	113 (65.3)	60 (34.7)		
>2	34 (38.2)	55 (61.8)		
Type of family				
Nuclear	112 (63.6)	95 (36.4)	5.248	0.02 statistically significant
Joint	102 (66.7)	51 (33.3)		

as more children from joint families (66.7%) were found to be following good hygiene practices than the nuclear families (63.6%) in our study. Similarly, number of siblings also found to be influencing the hygiene practices of our index children ($P = 0.001$), the study found out that those children who had no siblings had better hygiene practices (68.4%) than those children who had more than 2 siblings (38.2%). No statistically significant association was found between socioeconomic status and hygiene practices of the children in our study ($P = 0.37$) though the percentage of children following good hygiene practices was found to be more among families from upper socioeconomic strata (67.2%).

DISCUSSION

The current study on sanitation and hygiene practices of children conducted among rural families of Assam was one of its kinds as there were very limited data available regarding good hygiene practices of young children in this part of the country. The study found that only 35% of the families had access to piped water supply. Methods of excreta disposal were found to be sanitary among 57.5% of families and 15% of population were found to be practicing open-field defecation. The study revealed that the prevalence of good hygiene practices among children was 60%. In our study, essential hygiene practices such as regular bathing, handwashing, wearing of clean cloths, and trimming of nails were followed by most of the children. However, still, good hygiene practices

were not found to be universal among the study population. Not bathing regularly, unclean cloths, untrimmed hair and nails, and not using soaps for handwashings were some of the important unhygienic practices found by our investigators among the children. The practice of handwashing with soap before taking food was followed by very few children. Low socioeconomic status of most families and lack of knowledge of mothers regarding good hygiene practices might be responsible for that. In our study, better hygiene practices were observed among the males and younger children than their counterparts, it might be due to the reason that parents took better care of younger children and male children than female ones. The study observed that children in joint families following better hygiene practices than the children in nuclear families. Similarly, those children who had no siblings had better hygiene practices in our study. These findings observed in our study could be due to the reason that in joint families, more people were available to provide care to the children in the family; similarly, less children in the family meant more time could be provided by the parents to each child.

Similar to our study findings, in India, 44% of population are still practicing open-field defecation and 91.53 million people do not have access to clean drinking water.^[8,9] Existing data indicated that in rural areas of Assam, only few households (10%) had access to treated source of drinking water supply and only 45% had been using improved sanitation facilities.^[6,7] The big deficiency in safe drinking water supply to large numbers

of households in rural areas and lack of proper sanitation facilities might be influencing factors in deficiency of good hygiene practices among 40% of children in our study. The study conducted by Peter *et al.* also found that 60% of children had good hygiene care practices which were influenced by economical and maternal factors.^[10] Similar to our study findings, the previous studies also found association between gender biases in child care practices which contribute to malnutrition of female children.^[11] Preference of male child is still exist in our society and such social issue might be responsible for preferential treatment of male children by parents.^[12] Lack of good hygiene behaviors among older children might be due to inadequate health education of the parents. The previous studies also had similar findings.^[13,14] Joint family structure and lesser number of siblings were found to be influencing good hygienic practices among children in our study. Kalita *et al.* in their study also found better child care practices among joint families and among families having less numbers of children.^[15] Influence of socioeconomic factors on good hygienic practices was observed in the past studies also.^[10,16]

Strength and Limitation

Major strength of our study is that the study was one of its kinds conducted in this region of the country which was conducted in community level among rural households. The results from this study reveal some important information regarding child care and hygiene practices. Due to financial and time constraints, we limited our study to few specific variables only; therefore, detailed community-based study is recommended so that much-needed information can be collected which would be beneficial for child health programs.

CONCLUSION

There were very few studies done among rural community in this part of the country regarding this important topic. The prevalence of proper hygiene practices among children was found to be good in our study. Regular bathing, handwashing, wearing of clean cloths, and trimming of nails were some of the common hygiene practice followed by the maximum numbers of children in our study. Children belonging to joint and upper socioeconomic strata families had better hygiene practices. A statistically significant association was found in our study between higher education of mothers and better hygiene practices of their children. The findings from our study would be useful for proper evaluation of child health situation of Assam and can contribute to betterment of sanitation and hygiene practices of rural children.

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