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ORIGINAL RESEARCH ARTICLE

# A STUDY ON SANITARY AND HYGIENE PRACTICES IN CHUNGWANG VDC OF DHANKUTA DISTRICT, EASTERN NEPAL

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## ABSTRACT

Lack of proper practices of sanitary habit leads to ill health of household members, community and the nation as a whole. Provision of sanitary latrines and safe drinking water are necessary to prevent fecal oral transmission of infections. To conduct a study on sanitary hygiene and practices among the residents of Chungwang VDC. 97.4% of the respondents wash their hands with soap or other detergents though 99.3% of them had soaps at their home on observation. Similarly, 81.2% of them had toilet at home but only 79.2% used on regular basis. Basic hand washing was practiced by everyone during/after defecation and before meal but the importance of it after cleaning the bottom and nose of children and before preparing the meal was known to few of the participants. A need of behavioral change regarding optimum hygiene practices is required among the participants.

**Key Words:** *Hygiene, Sanitary habits, Village development committee.*

## INTRODUCTION

In an underdeveloped country like Nepal, diarrhea is usually caused by bacterial pathogens transmitted through fecal oral route.[1] The basic individual hygiene standard aren't practiced and maintained. The most important risk factor for fecal oral route is transmission lack of optimum hand washing practices after using toilets and before preparing meals. Patriarchal society is predominant in Nepal where females or housewives are responsible for maintaining hygiene and cleanliness in the house, children and kitchen. Studies have reported that hand washing practices substantially reduce the risk of diarrhea by almost half and respiratory tract infections by 16 %. [2,3,4] In this study, we tried to assess the hygiene practices and its relationship to diarrhea present among the local residents of Chungwang village development committee. Various community based organizations and non-governmental organizations have worked hard to promote the necessity of hygiene and its relationship with availability of toilet and water sources at household premises. Worldwide infectious diseases are the leading causes of childhood morbidity and mortality accounting for 64% of all the deaths under five children. [5] In Nepal, incidence of new cases of diarrhea in under five children is 500 per 1,000 cases. [6] Hand washing practices break the chain of transmission cycle of the infections.

## MATERIALS AND METHODS

A study was conducted among 150 households of Chungwang village development committee. This study was a part of Epidemiological Skills Management residential posting of third year medical students of BP Koirala Institute of Health Sciences. This district and the village development committee were identified by simple random sampling. A systematic random sampling was done to select the households with the help of female community health volunteer. The households and its members were identified and data was collected. The study was held in March 2012. All necessary data collected was supervised by the resident supervisors of school of public health and community medicine, BP Koirala Institute of Health Sciences, Dharan. Prior to initiation of the data collection, students, supervisors and resource persons were oriented and trained by conducting a workshop. 10% of the samples were pretested prior to the study to ensure validity and adequate understanding among the students and the supervisors. The stool and drinking water samples were collected ensuring proper sample collection technique from each household. The analyses of stool and water samples were tested in the department of Microbiology and Infectious Diseases in BP Koirala Institute of Health Sciences. Data was entered in excel software and analysed using SPSS 17.0 software. Written informed understood consent was taken from each participant and confidentiality was ensured of the information gathered during the study.

## RESULTS

A total of 150 local residents of Chungwang village development committee were interviewed. Among the respondents, majority (88%) of them were female and less than half (40%) of the residents belonged to age group of 15 to 29 years of age. More

than half (59.3%) of the participants were illiterate and 67.3% of them were housewives or local vendors. It was found that 65.3% of the families earned less than 10 United States dollar a month and 87.3% of them were married. (Table 1)

**Table 1: Socio–Demographic Characteristics of the Respondents (n=150)**

*Multiple responses

It was observed that 2.7% of the participants lack the availability of soap in their households. (Fig.1)

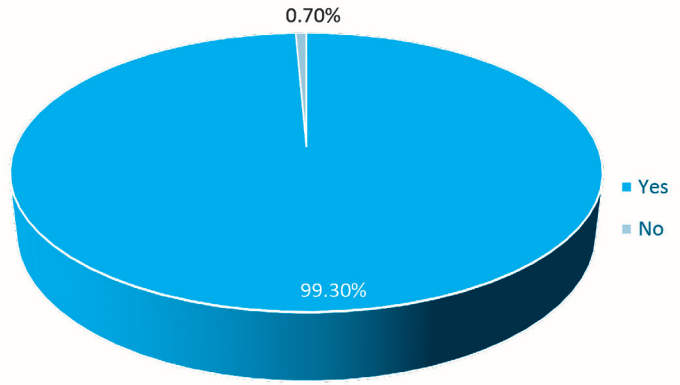


**Fig. 1: Availability of soap in respondents' households. (n = 150)**

It was reported that 97.4% of the respondents used soaps or other detergents for hand washing purposes. (Fig. 2)

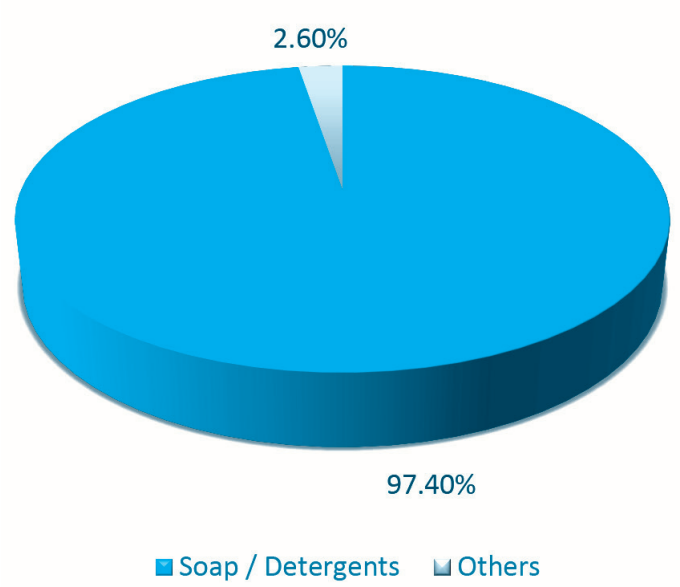


**Fig.2: Materials used for hand washing by respondents. (n = 150)**

Among the participants, 71.4% of them had the provision of water within their household premises but 81.2% of them had latrines at their home but only 79.2% of them used on daily basis and 89.3% of those were of water seal type. 97.3% of them didn't purify water for drinking purposes. Among them, 10% of the respondents and 21.3% of their family members had diarrheal episodes in the last two weeks whereas 50.7% and 61.3% of the respondents and their family members had faced diarrheal episodes in the last one year. (Table 2)

**Table 2: Distribution of sanitary and hygiene parameters along with diarrheal episodes among the respondents (n=150)**

| Characteristic | No. of Respondents | Percentage |
|---|---|---|
| **Distance from water source** | | |
| Within premises | 106 | 71.4 |
| Less than 30 minutes | 27 | 17.7 |
| More than 30 minutes | 17 | 10.9 |
| Purification of water | | |
| Yes | 5 | 2.7 |
| No | 145 | 97.3 |
| **Presence of Toilet** | | |
| Yes | 122 | 81.2 |
| No | 28 | 18.8 |
| Type of Toilet | | |
| Water seal | 108 | 89.3 |
| Non water seal | 14 | 10.7 |
| **Use of Toilet** | | |
| Never | 28 | 18.8 |
| Occasional | 3 | 2.0 |
| Always | 119 | 79.2 |
| **Episodes of diarrhoea in last two weeks among respondents** | | |
| Yes | 15 | 10.0 |
| No | 135 | 90.0 |
| **Episodes of diarrhoea in last one year among respondents** | | |
| Yes | 76 | 50.7 |
| No | 74 | 49.3 |
| **Episodes of diarrhoea in last two weeks among family members** | | |
| Yes | 32 | 21.3 |
| No | 118 | 78.7 |
| **Episodes of diarrhoea in last one year among family members** | | |
| Yes | 92 | 61.3 |

| | | |
|---|---|---|
| No | 58 | 38.7 |
| **Traces of defecation** | | |
| Yes | 19 | 12.7 |
| No | 131 | 87.3 |

A significant association was observed between age category and prevalence of episodes of diarrhea in last two weeks and last one year among the respondents. (Table 3)

**Table 3: Association of prevalence of diarrhea of the respondents with age categories (n = 150)**

| Characteristics | Age Category | | | | P value |
|---|---|---|---|---|---|
| | 15 – 30 years | 31 – 45 years | More than 45 years | Total | |
| **Prevalence of diarrhoea in last two weeks** | | | | | |
| Yes | 7 (9.7) | 2 (3.5) | 6 (28.6) | 15 (10.0) | **< 0.001** |
| No | 65 (90.3) | 55 (96.5) | 15 (17.4) | 135 (90.0) | |
| Total | 72 (100.0) | 57 (100.0) | 21 (100.0) | 150 (100.0) | |
| **Prevalence of diarrhoea in last one year** | | | | | |
| Yes | 39 (54.2) | 22 (38.6) | 15 (71.4) | 76 (50.7) | **0.02** |
| No | 33 (45.8) | 35 (61.4) | 6 (28.6) | 74 (49.3) | |
| Total | 72 (100.0) | 57 (100.0) | 21 (100.0) | 150 (100.0) | |

No significant association was observed between helminthes and amoeba/Giardia Lamblia found in stool with total / fecal coli of drinking water. (Table 4)

**Table 4: Association between total/fecal coli in drinking water with stool analysis (n = 150)**

| Characteristics Heleminthis in Stool | Total Coliform in water | | | P Value |
|---|---|---|---|---|
| | Yes | No | Total | |
| Yes | 4 (10.8) | 8 (7.1) | 12 (8.0) | 0.46 |
| No | 33 (89.2) | 105 (92.9) | 138 (92.0) | |
| Total | 37 (100.0) | 113 (100.0) | 150 (100.0) | |
| **Amoeba / Giardia Lamblia in Stool** | | | | |
| Yes | 6 (16.2) | 9 (8.0) | 15 (10.0) | 0.14 |
| No | 31 (83.8) | 104 (92.0) | 135 (90.0) | |
| Total | 37 (100.0) | 113 (100.0) | 150 (100.0) | |

## DISCUSSION

The average family size found in our study was found to be 4.9 which were lesser in comparison to the baseline study by Rural Access Programme where it was reported to be 6.02 and 5.6 by Dhankuta District Report. [7,8] Similarly, 65.3% of the participants were found to have earned less than Rs. 10,000 a month with agriculture being a predominant occupation for livelihood (32.0%).

Basic hygiene practices, good water source and proper sanitation, and hand washing practices are determinants of sound health. Poor compliance with these determinants led to adverse effect on health like diarrheal diseases, respiratory infections and worm infestation. According to, NDHS 2011, the prevalence of diarrhoea, upper respiratory infection and worm infestation is quite high among children in Nepal. Majority (97.4%) of them washed hands before and after meals and after defecation with soap and water which was comparatively higher than NDHS 2011 (75.0%) and another study done by Karn in the eastern part of Nepal 10 but none of them expressed if they washed their hands before preparing meal for the family which was also consistent with the study done by Ejmont [2] It was reported that 97.4% of them washed hands with soap or other detergents but on observation only 99.3% of the households had availability of soap / detergents. It could be that the residents wash hands with soap when available at their household but weren't conscious about the regular availability of soap for hand washing purposes. This was similar to the study done by Folasade Ogunsola in Nigeria where hand washing practices was common before and after eating and defecation but not after cleaning their children's bottom and nose. [11] It was similar to a study done by Sultana Rokeya Mannaa which reported that food hygiene practices of

mothers have an important impact on the prevalence of diarrhoea among children and mothers who don't separate cooked and raw foods were more prone to have their children suffer from diarrheal diseases. [12]

Tube well was found to be the main source of water in the study area but only 28.7% of it were located out of the household premises and this must have contributed to lack of hygiene practices and children felt lazy to walk long distance to maintain hygiene and mothers didn't have enough time to maintain fresh store water for consumption. Besides that, most of them (97.3%) consumed it without treating it which was higher than the finding by NDHS 2011. [9] This habit of drinking water without purifying must have contributed to diarrheal episodes among the respondents and their household members.

Among the participants, 81.2% of them had their own toilet and was consistent with the findings of Dhankuta district report and 89.3% of them were of water seal type. [8] Open field (40.0%) and river bank (33.3%) were the most common place to defecate among those who didn't have their own toilet. During data collection, it was observed that they were aware about the importance of having a toilet at home, still then some of the participants didn't have a toilet as they were recently married and shifted from their paternal house whereas some of them didn't construct hoping that community based organization would offer them financial help to construct sanitary latrine as they had offered help to some of their neighbours. Therefore, 12.7% of the households had traces of open defecation and 74% of them had predominance of vectors in their surroundings.

Diarrhoeal problems was reported to be a major problem in NDHS 2011 but this finding wasn't consistent in our study as only 10% and 50.7% of the respondents had suffered from diarrhoeal problems in last two weeks and a year. [9] It included all the respondents who had faced a single episode of diarrhoea too. This was possibly due to health promotion and education activities by the government health facility nearby and awareness program conducted by social clubs and community based organizations on regular basis. This was to be noted that significant contribution must have been made by the high compliance of hand washing practices among the participants in their daily lives.

Among the water samples tested, 30.4% of them exhibited total coliform probably ut due to slippage of polluted ground water around the water source into the tube well whereas only 8.7% of the water sources were tested to be positive for faecal coliform warranting adequate distance maintenance between water source and toilet. A moderate correlation and but no significant association was observed among the distance between water source and latrine and faecal/total coliform bacteria. Our stool analysis showed that, Giardia Lamblia was the major infestation among the positive stool samples which could probably be a reason behind diarrheal episodes and this was consistent with the study done in Kathmandu by a Japanese team, Shoji Uga et al. [13]

## CONCLUSION

Only 97.4% of the respondents washed hands with soap and water though in reality though 99.3% of them had soaps in their households. Similarly, 81.2% of the respondents had provision of toilet at their home but 79.2 % used it regularly. This showed the importance of behavioural change and communication among the participants rather than health awareness alone. Basic hand washing was practiced by everyone during/after defecation and before meal but the importance of it after cleaning the bottom and nose of children and before preparing the meal was known to few of the participants. This study paved a benchmark for further inputs to be provided to the local residents by the social clubs, community based organizations and non-governmental organization regarding the behavioural change and its effect on individual health and the community they live in. It's to be remembered that software was rather more important than hardware for successful implementation and operation of any healthcare interventions.

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