

# **DRINKING WATER SAFETY AND SANITATION IN RELATION TO DIARRHEAL DISEASES IN UNDER-DEVELOPED AREAS OF DISTRICT 5, KABUL AFGHANISTAN**

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## **Abstract**

### **1. INTRODUCTION**

Water related diseases continue to be one of the major health problems globally. Everyday water related diseases cause the death of thousands of children, untold sufferings and loss of working time. About 4 billion cases of diarrhea occur annually worldwide of which 88% is attributed to unsafe water supply, inadequate sanitation and hygiene. Hygienic interventions including education and promotion of hand washing can lead to reduction in diarrheal cases. It is learned that improved water quality, sanitation and personal hygiene significantly reduce the spread of diarrheal and many other waterborne diseases. The relation between hygiene, water sanitation and health has long been acknowledged as of prime importance. The lack of access to sufficient water

and sanitation facilities is one of the largest hindrances of the sustainable development of the poorest 2.2 billion people in the world.

## 2. OBJECTIVES

The purpose of the study was to identify the association between diarrheal diseases and hygienic practices concerning drinking water and sanitation status in the selected underdeveloped areas of district 5, Kabul City. In addition the study analysed the basic prevailing knowledge attitude and practices (KAP) of the people of underdeveloped areas about water safety and hygiene practices and what can be done to address them.

The specific objectives of the study are outlined as below:

To describe prevailing knowledge, attitude and practices related to drinking water and domestic hygiene

To identify association of diarrheal diseases with the drinking water sanitation and hygiene practices

To identify household domestic hygiene practices which influence the occurrence of diarrheal diseases

To identify association between latrine condition, sanitation status and occurrence of diarrhea

To identify whether there exists any difference regarding domestic hygiene practices, latrine sanitation and knowledge, attitude and practices (KAP) among camp and non-camp areas especially from the view point of diarrheal diseases

## 3. METHODS

A cross sectional study was conducted in underdeveloped areas of Kabul city in September 2011. The questionnaire was designed and then translated to local languages for administration and data collection. The selected areas included Charahi Qambar (camp) and Company Sare Karez (non-camp). The camp area of the Internally Displaced Persons is located in the west part of the district 5 in which 874 households live under tents comprised of a total of about (6900) individuals. The non-camp area is an informal settlement in which ap-

proximately 1050 households live in traditional houses without proper drinking water arrangement and sewage system.

The selection of both areas was based on convenience sampling technique. First the field test was carried out and then the survey tools were administered by medical students and trained staff with prior medical background.

The study is based on the sample of 200 household's selected using two stage sampling technique from District 5. At the first stage, two areas were selected using the stratified sampling technique from camp and non-camp areas and were considered as two strata's. Due to lack of financial support and cost constraints, those areas were selected using convenient sampling and then a sample of size 100 was selected from each area by using two different techniques, systematic sampling for camp area and convenience sampling for non-camp area. The interviewers visited every house included in the survey until they found the head of the household to respond, the response rate was 100%. The questionnaire consisted of five sections and 43 questions relevant to the study objectives. The interviewers were asked to observe the household sanitation practices and sanitary equipments in their houses.

The data was entered into Epi Data version (3.1) software and then exposed to SPSS version 15.0 for analysis. After simple tabulation a two-by-two (2 x 2) cross tabulation was done by using SPSS and Microsoft Excel in order to find any significant association between variables and possible differences between camp and non-camp areas. Chi-square test was also used to measure the degree of association and for those questions with more than two answers; the answers were categorized into two comprehensive groups. Further, the stratification analysis was done for some variables within camp and non-camp areas respectively, in order to evaluate their magnitude on diarrhea.

#### 4. RESULTS AND DISCUSSION

In the present study some of the practices were found to be associated with occurrence of diarrhea within the households in the three months preceding the survey. This significance was for lower education level of the households (OR=8.9, 95% CI: 1.1-70.7) ( $p<0.05$ ), hand washing before taking meal

(OR=0.3, 95% CI: 0.4-1.7) ( $p<0.01$ ), hand washing after latrine use (OR=0.4, 95% CI: 0.4-1.7) ( $p<0.05$ ), presence of flies around drinking water sources (OR=4.6, 95% CI: 2.2-9.7) ( $p<0.01$ ), location for disposal of solid waste (OR=2.5, 95% CI: 1.2-5.0) ( $p<0.05$ ), longer duration of time for storing drinking water at home (OR=4.3, 95% CI: 2.0-9.2) ( $p<0.01$ ), presence of sink (hand washing place) (OR=0.5, 95% CI: 0.3-1.0) ( $p<0.05$ ), prior treatment of drinking water (OR=0.5, 95% CI: 0.3-1.0) ( $p<0.05$ ) and disinfection of latrine, (OR=0.5, 95% CI: 0.3-1.0) ( $p<0.05$ ).

The study also revealed that the hygienic practices between camp and non-camp areas were considerably different ( $p<0.01$ ). This difference was for hand washing before taking meals and after latrine use, presence of flies around drinking water source, presence of separate water container, duration of time for storing drinking water at home, prior treatment of drinking water, knowledge about necessity to boil water before drinking, occurrence of diarrhea in household, knowledge about dehydration, consulting a doctor during episodes of diarrhea, knowledge about the fatality of diarrhea and safety of drinking water, disinfection of the latrine, and the number of household sharing latrine with others among the individuals in the two areas (camp and non-camp).

It has also been observed that location of water source, presence of sink (hand washing place) and sanitation facility (latrine), location of waste disposal and latrine for the house, presence of separate urine and ventilation pipes in latrine and distance from latrine to drinking water sources among the individuals in the two areas (camp and non-camp) were considerably different ( $p<0.01$ ). Improper handling and storage of drinking water in the home deteriorates water quality in the households. When the sample was separated into camp and non-camp and the relationship between diarrhea and some studied factors was analysed, diarrhea in household did not show any significant relationship with these factors. This outcome could be due to the fact that the sample size in each category was not enough to draw statistical difference. It could also be as a result of the situation that the behaviour between the two areas was so different that the difference itself caused health risk among both areas.

## 5. CONCLUSION

There are some factors which play a significant role in transmitting waterborne diseases like sanitation, socio-cultural, environmental and economic factors, living condition, feeding and hygienic practices; hence it is difficult to identify the specific routes that lead to diarrhoeal diseases. Post source contamination of water sources affects health.

In the present study some of the practices observed were found to be associated with occurrence of diarrhea in the household. The findings also show that many hygienic practices were different between camp and non-camp areas. Also, hygienic practices among camp residents were not good compared to the hygienic practices of their counterparts in the non-camp area. This situation could thus make camp area residents more vulnerable and exposed to the risk of diarrheal diseases. It is therefore recommended that greater emphasis be placed on improving water quality at point of use by promoting better handling during collection, storage and treatment by targeting needs-based and focused interventions. Thus an overall approach to community water sanitation, domestic hygiene practices, strengthening hand washing behaviour, water source improvement and intensive behavioural change in sanitary practices can definitely produce better health outcomes.