WATER USE AND HYGIENE PRACTICES OF A SLUM COMMUNITY IN COLOMBO DISTRICT: A GENDER FOCUSED STUDY

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Introduction

In many developing countries, urban expansion has often been characterized by informal, illegal and unplanned settlements. In general, urban growth is strongly associated with poverty and slum growth [1]. In most of the developing countries in Asia, urbanization is accompanied by slums and lack of shelter, informality, poor living conditions and increasing risks due to climate change [2].

The United Nations Human Settlements Programme (UN-Habitat) defines a slum household as one that lacks one or more of their criteria of access to safe water, access to improved sanitation, security of tenure and durability of housing and sufficient living area [3]. Housing is one of the basic needs of humans. But housing in slums differs from the formal housing in other parts. Worldwide, 18% of all urban housing units (around 125 million units) have non-permanent structures and at least 25% of all housing (175 million houses) does not meet the standards of urban construction codes [3].

Asia accounts for two-thirds of the world's population (670 million people in both rural and urban areas) with a considerable percentage not having access to safe water [3]. On an average, only 68% of Asia's urban population has access to pipe borne water supply in their living premises [2]. Number of houses per public tap among slum families were found to be 11, 20 and 28 in Mukund Nagar, Rajiv Nagar and Malad in Mumbai city of India respectively [4].

Sanitation services in Asian cities are highly inadequate and in several countries the situation remains poor. Large proportions of urban households in Nepal (36%), Mongolia (31%), Bangladesh (26%), and China (24%) use shared and community latrines [2]. Human excreta and the lack of adequate personal and domestic hygiene have resulted in spreading of many infectious diseases including cholera, typhoid, hepatitis, polio, cryptosporidiosis, ascariasis, and schistosomiasis [5].

Women in these societies suffer heavily due to the problem of inadequate sanitation. Unhygienic public toilets and latrines threaten the health of women, who are vulnerable to reproductive tract infections caused by poor sanitation. For women who are menstruating, the need for adequate sanitation becomes even more acute [3].

This study was conducted on a slum community in Colombo district of Sri Lanka with the objective of assessing gender sensitivity in water use pattern, sanitation and hygiene practices.

Materials and Methods

The study was conducted as a cross-sectional descriptive study. Stratified Random sampling was carried out for the survey. The sample was selected to represent each family including a male and a female member. Age groups among 12-19 years, 20-60 years and above 60 years were selected to represent all age groups (Children and young, economically active and aging respectively) . Total sample size was 120 representing members from all the families living in the area. After obtaining their verbal consent, the respondents were explained about the purpose of the study and were requested to complete the questionnaires to take relevant information regarding water sources, water use pattern, personal and domestic hygiene practices, issues faced with respect to availability of water and sanitary facilities etc. The questions were evaluated using descriptive methods and appropriate statistical tools to extract information. Results were presented in the forms of descriptions, figures, tables etc.

Chi square test was used to test the association between variables. When the significance level (alpha) = 0.05, p -value > 0.05: [Do not reject H_0Vs. p-value < 0.05: Reject H_0]. Ethical clearance for the study was obtained from the Ethical Clearance Committee of the Faculty of Allied Health Sciences, University of Peradeniya, Sri Lanka.

Results and Discussion

Characteristics of the study population and their housing condition

The sample consisted of equal number of males and females (60:60). Majority of the population (65%) was in the economically active age group (20-60 years) and the aged population (above 60 years) was low (8.3%). The rest was fallen under the category of 12-19 years. None in the population were educated above advanced level. Majority (69.2%) of the respondents was married. Half of the males are engaged in private sector employment while 90% of the females do not engage in any occupation. Unavailability of an income source can lead to many other problems among this population.

The monthly income variations between males and females were analyzed using statistics and it was revealed that there is a significant difference between the two categories at $p<0.05$ ($p=0.001$). There is a significant positive association between gender and monthly income level and between gender and occupation at $p=0.05$. The United Nations Human Settlements Programme (UN-Habitat) defines a slum household as one that lacks one or more of their criteria of access to safe water, access to improved sanitation, security of tenure and durability of housing and sufficient living area [3]. Majority (44.2%) of the respondents mentioned that they have three issues out of five. Entire study population mentioned that they have insufficient space in the houses and insecure tenure.

Water usage pattern and hygiene

A considerable proportion of the population depends on public sources of water for personal (40%) and domestic (26.7%) water requirements. Majority (86.7%) of the total study population said that they select the water sources based on easy access and availability. Nearly two third (62.5%) of the total study population mentioned that low cost is also an important factor to select a water source for their use. There was no significant difference between the source of water used by males and females ($p>0.05$). The main source of domestic water requirement is indoor piped water. However, a study carried out in Kenyan Langas slum found that for most people (91%) wells are the main source of domestic water, whereas the rest used piped water [5]. Study identified that there is a significant relationship between average daily water usage for personal hygiene ($p<0.05$) and the gender as females use more water compared to males. There is a significant relationship between bathing ($\chi2$ (1) =11.868, p=0.001) and the gender as males take bath more frequently compared to females. In this population, there is a significant association between gender and daily washing of clothes ($\chi2$ (1) =27.184, p-value<0.001), brushing teeth twice a day ($\chi2$ (2) =30.312, p-value<0.001), washing hands using soap ($\chi2$ (1) =22.263, p-value<0.001) and females are leading in all aspects. The study also showed a significant relationship between hand hygiene ($\chi2$ (3) =24.865, p-value<0.001) and the gender since females wash hands frequently before an activity compared to males. This study identified that 98.3% of female respondents wash their hands using soap.

Considering menstrual hygiene practices**,** frequency of cleaning genitalia during menstruation is less in female respondents' educated up to Grade 6 (40%). There is a statistically significant relationship between menstrual hygiene and the education level ($\chi2$ (2) =10.519, p-value=0.005). In addition, a significant relationship was identified between age and the frequency of cleaning the genital areas during menstruation ($\chi2$ (4) =62.308, p-value<0.001). Young females are more concerned about genital hygiene compared to middle aged. The study showed a significant relationship between education level ($\chi2$ (2) =11.633, p-value=0.003) and using correct method of cleaning genitalia during menstruation. According to Figure 1 a significant relationship was identified between incorrect method of cleaning genitalia and the diseases related to urinary tract during menstruation ($\chi2$ (2) =69.889, p-value<0.001).

According to the findings, majority of the study population used water sealed toilets (55.8%). There is a statistically significant relationship between regularity of toilet cleaning and tap water as source of water for the toilet ($\chi2$ (12) =41.333, p-value<0.001). Easy availability of water facilitates the people to clean the toilets more frequently and it may be the reason for the observed relationship. 97.5% use soap as the detergent to clean their body after toilet use. 70% of the respondents mentioned that in order to maintain good hygienic condition, usage of the toilet should be limited to family members.

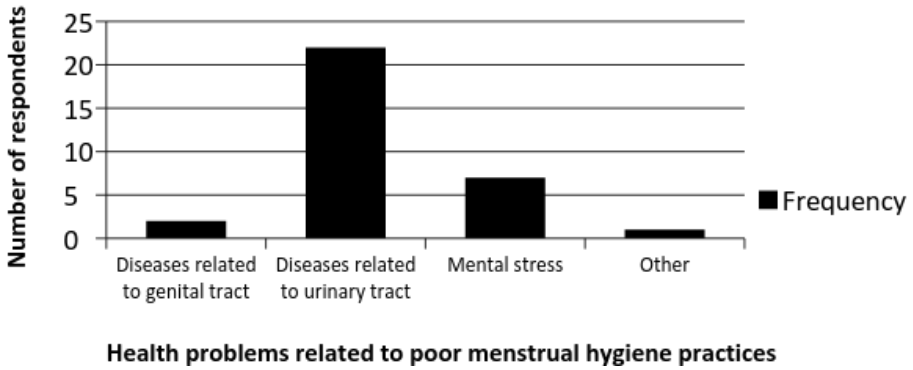

Figure 1. Health problems related to poor menstrual hygiene practices

The study revealed that there is a statistically significant relationship between private and public water supply and water boiling ($\chi 2$ (4) =53.913, p-value<0.001) and there is a significant association between the usage of water filters and education level ($\chi 2$ (1) =5.602, p-value=0.018) showing that education has an impact on the use of clean water for drinking.

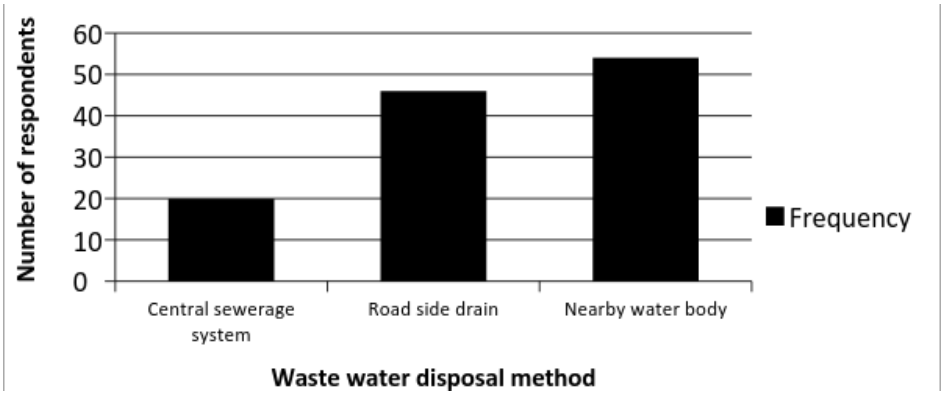

Figure 2. Waste water disposal methods practiced by the study population

Figure 2 show that 45% of the study population discharges their wastewater to the nearby water body. There is a significant association between diarrhea due to poor waste water disposal and female slum residents ($\chi 2$ (1) =5.175, p-value = 0.023). A study conducted in Mumbai city revealed that all types of domestic wastewater from slum houses finally discharge either into surface roadside drains or to nearby lands or water sources [4].

According to Figure 3 diarrhoea is the predominant disease affecting a considerable percentage of the population. The study revealed that there is a statistically significant relationship between public tap water usage for domestic hygiene and diarrhoea ($\chi 2$ (4) =19.698, p-value<0.001). Lack of cleanliness and possible contamination of water at the source may be the reasons for high prevalence of diseases among public tap water users.

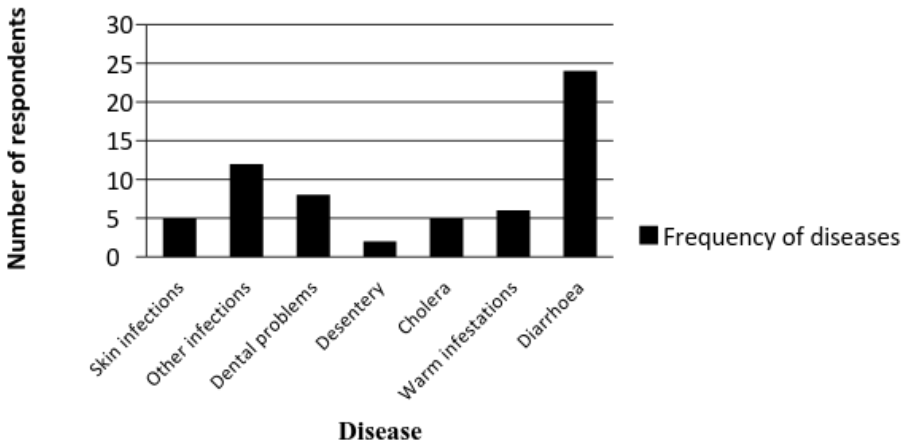

Figure3. Distribution of diseases within last 6 months of the study population

Conclusions and Recommendations

This study revealed that the slum residents in the area have number of issues related to their housing, socio-economic problems such as poor income, income disparities between males and females. Lack of personal and domestic hygiene, issues related to menstrual hygiene practices among females, lack of proper wastewater disposal methods, unavailability of individual water connections to a considerable percentage of population, unhealthy toilet environment etc. However, they have access to water. It was evident that lack of awareness about health and hygienic conditions, use of safe drinking water, lack of awareness on menstrual hygiene are some aspects that need attention. Hence, it is important for the authorities to formulate strategies to improve their infrastructure facilities and to make the residents aware on the above health and hygiene practices. Government health services should pay more attention to improve their health condition and arrange health camps with minimal charges to improve knowledge regarding proper sanitation practices.

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