

Original Research Article

Study On Sanitary Condition in Slum Area of Balkhu, Kathmandu Metropolitan City, Nepal

Sabyata Gautam^{1*}, Rojina Basnet²

¹ PhD Scholar, Department of Pharmacy, Shri JYT University, India

² Department of Public Health, Institute of Medicine (IOM), Maharajjung, Kathmandu

ABSTRACT

Inadequate sanitation is a major cause of disease world-wide and improving sanitation is known to have a significant beneficial impact on health. The study on sanitation condition of Slum Area of Balkhu-14, Kathmandu was studied. In this descriptive study, data was collected from 100 households, selected by using simple random sampling. Most of the respondents were female i.e. 70%. More than half of the respondents were illiterate and 69% of them were labor. Almost half of the respondents of the slum area, had knowledge about sanitation, i.e. 43% of the respondents told the correct meaning of sanitation. Study revealed that only 58% of the respondents had a toilet in their houses, 74% of the respondents used to brush their teeth once a day and 19% twice a day, and only 81% used soap water for washing their hands after toilet. It was found that 72% of the respondents were found to use water without treatment. The main communicable disease occurring in the study area was found to be diarrhea. Since, the area was highly crowded and the low level of knowledge of the slum dwelling people, the sanitation condition of the slum area was not good. Thus, awareness raising program regarding the sanitation practices and cleaning their environment should be conducted and the policy makers should give priority for the improvement of lifestyles of slum dwelling peoples.

Key Words: Sanitation, slum, communicable diseases

INTRODUCTION

Health is a great asset of human being. It denotes the condition of human body which is free from sickness, injury or disease and can perform daily activities smoothly. The widely accepted definition of health is "Health is a state of complete physical, mental, and social well-being and not merely an absence of disease or infirmity" (WHO, 1948). Later on in 1978, Alma-Ata declared that health is a fundamental human right and worldwide social goal; that it is to be attained by all people. Health is that quality resulting from the total functioning of the individual that empowers him/her to achieve a personally satisfactory and socially useful life [1]. According to Ramachandran and Dharmalingam, for maintenance of good health, the essential things are, adequate quantities of proper nutrition, adequate quantities of safe drinking water, proper shelter with adequate ventilation and lighting, proper clothing, proper work, exercise and rest and recreation, personal hygiene, proper security from fear of any kind, proper sexual behavior, provision and utilization of health services, proper social conditions for a harmonious existence and work [2]. For maintenance of good health, sanitation is essential. Sanitary housing is a condition

that everyone is under to ensure that they take care of their homes and do not put anyone else in danger. A bad example of sanitary housing would be for you to leave all of your bags of rubbish in your back garden. Vermin and dirty rubbish can spread infection and disease and you will find that you are going to be in trouble with the law if you cannot abide by the sanitary housing rules that are in place. A good example of sanitary housing is simple, you keep your home clean and you ensure that all of your rubbish is taken care of successfully and that it is not left lying around so it can attract certain infections, molds and animals. The UNESCO defines sanitation as "Maintaining clean, hygienic circumstance that helps avoid disease through services such as waste collection and waste water removal". Sanitation is a term generally used with respect to health and undertaken in order to protect oneself from disease or illness. Sanitation is the science of safeguarding health [3]. Sanitation for households' means much more

* Correspondence : Sabyata Gautam, MPharm (KU)
E-mail : sabyata@gmail.com

than building toilets. The most important requirement for safe sanitation is, of course, getting rid of human excreta, dirty water and household refuse. EHP (Environmental Health Promotion) also uses the term sanitation to denote the ‘facilities and hygienic principles and practices related to the safe collection, removal or disposal of human excreta and domestic wastewater’. In one sense, this is a narrow definition; it does not include either solid waste management or the aspects of water supply that relate to the need to meet minimum conditions for a healthy and hygienic lifestyle. However, it is broad in the sense that it goes beyond facilities to include principles and practices. The main responsibility for providing household sanitation rests with the family or household. The role of local government is to help make this possible, or to carry out those functions which can be done more efficiently at a community level. Both provincial and national government will support and assist local government to fulfil this responsibility [4]. Sanitation generally refers to the provision of facilities and services for the safe disposal of human urine and feces. Inadequate sanitation is a major cause of disease world-wide. The word ‘sanitation’ also refers to the maintenance of hygienic conditions, through services such as garbage collection and wastewater disposal. Providing access to sufficient quantities of safe water, the provision of facilities for a sanitary disposal of excreta, and introducing sound hygiene behaviors are of capital importance to reduce the burden of disease caused by these risk factors. Inadequate sanitation is still a major problem in the developing world [5]. Since 1990, an estimated 747 million people have get accessed to sanitation facilities. In South Asia, slums and squatter settlements constitute 58% of the total urban population compared to other developed countries. The policy of country must target the poorest, indigenous group or specially those groups with minimal level of access to service [6]. Urban poverty and growth of slums, informal settlements and squatter areas pose obvious hazards and risk to health (Improving Urban Population, Health Systems Center for Sustainable Development, July 15-2-2007). Infection spreads like wild fire in congested slums. People living in slum areas are deprived from the health facilities and care due to various causes like low awareness, bad sanitary condition, poverty as well as negligence of state to their health.

People living slum areas means, those living in tiny shacks made out of scraps of old metal or wood and a mish-mash of other cast off materials having no land of their own, they squat on other people’s unused properties [7]. About 2.4 billion people globally live under highly unsanitary conditions and have such poor hygiene behaviors that their exposure to risks of incidence and spread of infectious diseases, are enormous. The rapid growth of cities and urban population bring both opportunities

and challenges. On the one hand, cities are drivers of economic growth and development, concentrating opportunities for businesses and people. On the other hand, urban infrastructure often fails to keep pace with demand, leading to a deterioration of living conditions and such problems as environmental degradation, a shortage and poor quality of public services, the rise of disease and health risks, especially poorer people. Urban population growth could be even more substantial as a result of economic reforms, reclassification and other factors. Usually the slum areas in a city, are densely populated with substandard housing, characterized by unsanitary condition and social disorganization [8]. Although WHO and UNICEF estimate that 1.2 billion people worldwide gained access to improved sanitation between 1990 and 2004, an estimated 2.6 billion people - including 980 million children – had no toilets at home. If current trends continue, there will still be 2.4 billion people without basic sanitation in 2015, and the children among them will continue to pay the price in lost lives, missed schooling, in disease, and poverty [9]. “Nearly 40% of the world’s population lack access to toilets, and the dignity and safety that they provide,” said Ann M. Veneman, UNICEF Executive Director. The absence of adequate sanitation has a serious impact on health and social development. The International Year of Sanitation 2008 aims to raise the profile of sanitation issues towards meeting the MDG target of reducing by half by 2015 [10].

Justification of the Study

In recent years, there has been increasing recognition of the importance of sanitation. The most obvious manifestation of this recognition was the addition of a sanitation-related target to the Millennium Development Goals (MDGs) following the Johannesburg Summit on Sustainable Development in 2002. In this modern era rapid population growth and unplanned urbanization is increasing which have brought about the formation of slum area. Today 25% of the total urban population or three fourth of a million people are urban poor in Nepal (World Bank, 1999). At present, there are about 63 informal settlements in Kathmandu which is also popularly known as “Sukumbasi Basti”. These settlements provide housing to about 2,600 families or nearly 15,000 people. In these slum areas, because of depleting condition in sanitation, different groups of people inhabiting there may be exposed to a wide range of risk of diseases. The risk for disease transmission in poor sanitary environment is very high and associated primarily with the heavily populated condition, especially the proximity of safe water and functioning latrines, the nutritional status of people, the level of immunity and the access to health care services. The study site is one of the heavily populated urban areas of substandard housing, characterized by

unsanitary conditions. These areas suffer not only from overcrowding, but also the poor health condition due to an effective sanitation model.

Objectives of the study

General Objective: To assess the sanitary condition prevalent in slum areas of Balkhu of Kathmandu Metropolitan City

Specific Objectives:

- To find out about the condition of personal hygiene of slum people.
- To find out the condition of latrines in slum households.
- To assess the drinking water condition and waste disposal practice of slum area dwelling people.
- To explore the health situation of the respondents.

RESEARCH METHODOLOGY

A descriptive type of cross sectional study was conducted in slum area of Kathmandu metropolitan city, ward no. 14, Balkhu, Kathmandu with the objective of assessment of the sanitary conditions of people living in slum area. A total of 100 respondents were selected through systematic random sampling procedure. Data were collected by using structured interview schedule and analyzed manually.

Study Design: This was a descriptive and cross sectional type of study.

Study Area: The study area is the slum area of Kathmandu valley which is situated in Kathmandu Metropolitan city ward no.14, Balkhu. The study area was selected purposively. It was selected because being a capital city it has many slum settlements with poor sanitation condition and the study was done for exploring the sanitation condition of the slum settlements of capital city.

Study Period: The study period was from June 2008 - October 2008.

Sample Size: Approximately 27% of total household was taken as sample size (i.e. 27% of 360= Aprox.100 household)

Sampling technique: For the purpose of data collection systematic random sampling technique was used.

Inclusion criteria and exclusion criteria:

Inclusion criteria

- One respondent from each household was taken preferably household head and alternative others, who had given consent, were included in study.

Exclusion criteria

- People, who were seriously ill, mentally retarded and who could not listen and speak.

- If anyone living in rent.

Tools and techniques of data collection: The tool of data collection was interview-schedule containing semi-closed questionnaire. The questions were designed in light of objectives of the study. Before the collection of data, respondents were asked for verbal consent. On the basis of their response closed question's option was marked.

Data management, analysis and interpretation: After collecting data from field, data were checked and rechecked immediately to correct possible errors and consistency in data. Data were analyzed by using ms-excel work sheet and the results were presented in table and figure respectively.

Ethical considerations: Informed consent (verbal) was taken prior to the data collection. The research participants were given information of the research including the purposes, research procedures, risks and discomforts and its beneficence to the participants.

RESULTS AND DISCUSSION

Sanitary conditions and personal hygiene are fundamental to health. A state of health can be graded with respect to the environmental condition in which he/she lives and strives for work. The slum area is regarded as the bed of ill health and copes with financial, social and dignity problems which is the compulsion. An endeavor has been made in this study to measure and define the sanitary conditions of the area that can reflect the existing sanitation and health or disease condition. A descriptive type of cross-sectional study was done for assessing the sanitation condition of the slum area of Kathmandu Metropolitan Ward no. 14, Balkhu.

I. Demographic Profile

The findings related to age, sex, educational status, marital status, occupation, religion, ethnicity and income level of the respondents are stated below.

Respondents by Age

Table 1: Respondents by Age (n=100)

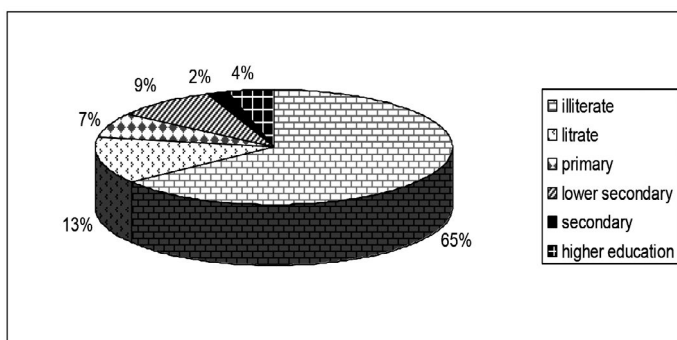
Age group	Frequency	Percentage
15-20	4	4
20-25	9	9
25-30	20	20
30-35	15	15
35-40	16	16
40-45	12	12
45-50	7	7
50-55	6	6
55-60	4	4
60-65	4	4
65+	3	3

Sex: It was found that, 70% of the respondents were female and 30% were male. Female respondents were two times more than the male and most respondents being the age of below 40. Male and female differentiation might be because the study was done during day time during when the male members were outside the house for working.

Marital Status: It was found that 92% of the respondents were married, 5% were unmarried, 1% widowed, 2% separate.

Educational Status: Educational status of the study revealed that more than half of the respondents (64%) were illiterate, only 13% were literate. 7% had primary education, 9% lower secondary, 2% secondary, 4% higher education. This is shown in the figure below:

Figure 1: Educational Status of the Respondent



The study revealed that more than half of the respondents were illiterate. Majority of the literature review also revealed that the educational status of the respondents was poor as the study revealed. In today's context it is very bad thing to have more than half people illiterate who lived near to the capital city.

Income level: Study showed that 37% of the respondent had income level below 3000 per year, 40% 3000-6000 per year, 20% 6000-9000 per year, and 2 percent more than equal to 9000 per year. This shows that the economic condition of the people is too poor. Poverty is the main problem contributing the bad sanitation condition and health status of people of Nepal. It is indisputable fact that in spite of the various developmental projects, plans and programs, Nepal remains a poor country and the same was in the study area also.

II. Socio-Cultural Status

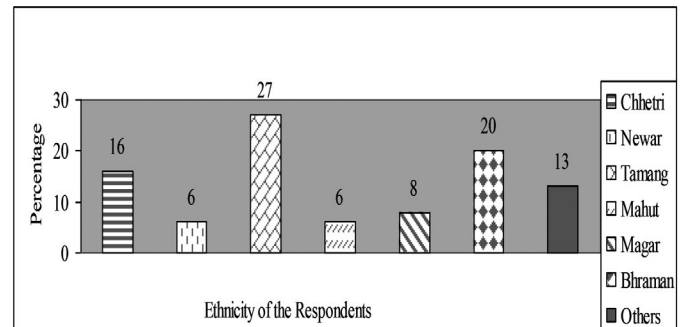
Occupational Status of the Respondents: Occupation is also one of the determinants of health and sanitation is also directly related with the occupation in which people is involved. In this study, 69% of the respond were labor, 9% business, 12% service holder, and 9% others and only very few percent of people are engaged in farming (i.e. 1%). Nepal is an agricultural country and above 90% of the Nepalese are engaged in agriculture but in the study area only one percent of the respondents were farmer. This is because the study area is a slum area and due to lack

of farming land the agricultural status is poor in the area. Most of the respondents being labor, they become dirt very soon so they need to be careful about their personal hygiene.

Religion: Of the total respondents 51% were Hindus, 19% Buddhists, 26% Christians, 2% Muslims and 1% Kirats. Most of them were from Hindu with other being Buddhists, Christians making community secular.

Ethnic Distribution: Ethnic distribution has been shown in figure below.

Figure 2: Ethnicity of the Respondents



III. Sanitation Related Activities

Sanitation is the main determinant of the health of human being. Generally better sanitation practice is the main measure to improve the health status of people. Nowadays bad sanitation condition and practices of people are causing great public health problem. Many communicable diseases like diarrhea, cholera, common cold, typhoid, tuberculosis etc. are still prevalent in many places of Nepal.

Table 2: Knowledge of the Respondents Related to Sanitation (n=100)

Meaning of Sanitation	Frequency	Percentage
Washing face	6	6
Bathing	37	37
Hand washing	7	7
Combing Hair	1	1
All of Them	43	43
Others	6	6

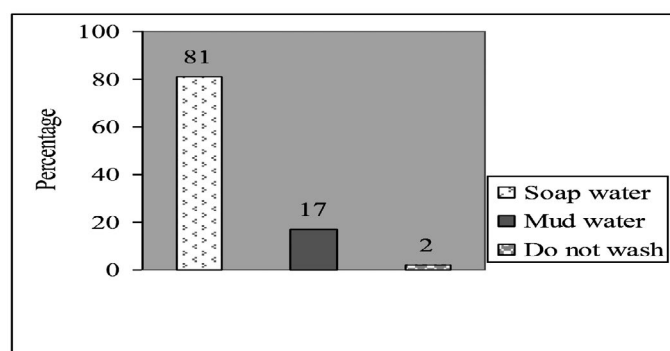
Nearly half of the respondents had knowledge about sanitation, i.e. 43% of the respondents told the correct meaning of sanitation, 6% told that sanitation means washing face, 37% bathing, 7% hand washing, 1% combing hair, 1% waste management, 3% house cleaning and 2% of them said that they didn't know the meaning of sanitation which is shown in table number 2. This shows that still there are people who did not know about the importance of the sanitation and still they do not know what sanitation is which is contributing for the bad health

condition of the people of the study area. The similar research done in Jorpati VDC in 2003 showed that 37.5% respondents had knowledge about sanitation [13], which is less than the finding of this study which was slightly good. This differentiation is due to the time and place differentiation.

Brushing Habit: It was found that 74% of the respondents had brushing habit daily, 19% twice a day, 4% sometimes and 1% were found have never brushing. For brushing teeth, 94.94 percent were found to use tooth paste, 2.02 percent coal, 1.01 percent ash, 2.04 percent others (1.01 percent soap and 1.01 percent salt and water). Similar research done in Gajendra VDC, Kailvastu revealed that 85 percent of the respondents had brushing habit.

Hand Washing Practices: It is well known that washing hands before eating helps to reduce most of the communicable diseases and it was found that cent percent of the respondents used to wash their hands before eating which is a very good. For washing hands after toilet, 81% of the respondents used soap water, 17% water only and 2% mud water. This shows that they have the knowledge that they should wash hands by soap and water after toilet, but still they seem ignorant of their health and hygiene practices.

Figure 3: Materials used by Respondents for Washing Hands



Bathing Practices: It was found that 9% of the respondents used to bath daily (good), 27% two days interval, 58% once in a week, 3% once in month, and 3% twice in a week.

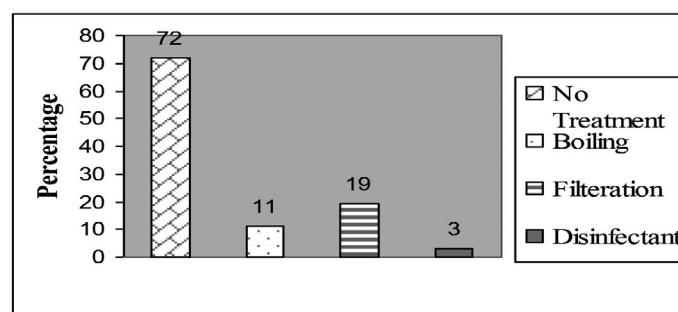
Availability of Toilet in House: In the study area it was found that 58% of the respondents had latrine in their house. Among them, 15.52 percent had modern (water sealed) and 84.48 percent had pit latrine. Those who had latrine in their home, it was found that 98.27 percent of the respondents use toilet by all members while 1.73 not. Those who did not have toilet, 90.48 percent were found to go to river, 7.14 percent to public toilet and 2.38 percent to others toilet. So, more than half the respondents had latrine in their house. In the context of Nepal half the house hold does not have toilet [14]. Though it is more than national figure it still seemed not good as those who did not have toilet used to defecate in the river and in the public places

polluting the environment very badly. As compared to other research i.e. about 91% of the respondents did not have toilet facility in their house [15], but the condition of the study area seemed to be slightly good. Those who did not use the toilet were the small children whose mother told that children need not to use the toilet. The mothers told that using toilet was for removing the shame during defecation and as children do not have such feelings thus, it is unnecessary to use the toilet. This showed that they didn't even know the concept that the use of latrine helps to reduce the pollution which has a great influence on the transfer of the communicable diseases.

Sources of Drinking Water: It was found in the study area that, 61% of the respondents use tap water for drinking, 34% well, 3% ponds and 2% river. The water supply in the study area was very bad. Those who used tap water for drinking water were obliged to fetch the water from far away tap. Those who were using well water had no other alternative and were using muddy water without treatment because of lack of knowledge. In the context of whole country, 82% of households obtain drinking water from an improved source. Households in urban areas have higher access to an improved source of drinking water than households in rural areas (90 percent compared with 80). The most common source of drinking water in urban areas is piped water, with about two fifths of households having this source. On the other hand, tube well or borehole is the most common source of drinking water in rural areas [14]. It was found that 74% of them used to store the drinking water by covering. Covering of the drinking water during storage plays an important role in saving the water from further contamination and reduce the magnitude of the water borne diseases.

Treatment of Drinking Water: In the study area, 72% of the respondents were found to use water directly, 11% by boiling, 14% filtering and 3% using disinfectant, which is shown in the figure below.

Figure 4: Methods of Using Drinking Water



This shows that people of the study area were too much ignorant about their sanitation practices. They were very much careless about the drinking water and were suffered from the problems occurred due to the use of contaminated water. In the context of Nepal 7.5% of

people use boiling method for disinfecting water, 1.1% use of chlorine, 5% strained through clothes, 5.4% filtration, 0.1% solar disinfection, 0.2% other and 86.5% use water without treatment.²⁵ In compare to the national figure, directly using was though less (72 percent study figure, 86.5 percent national figure) but it is not so good while relating to the health of the people. In comparison to the other research conducted in same topic viz. 70% of the respondents use water directly^[16], people using water directly was more by 2% in this study. It was found that, though half of the respondents had water sufficiency, half of people of the study area were suffering from water inadequacy. Thus, the people of the study area were not getting adequate water.

Waste Disposal: Waste management practice has been shown below.

Table 3: Waste management practices (n=100)

Waste management practices	Frequency	Percentage
Dumping	32	32
Composting	0	0
Burning	8	8
Burying	5	5
Throwing in the river	55	55

It was found that most of the respondents used to throw the waste directly into the nearby Balkhu River, followed by dumping process. This shows that the people are polluting the river day by day. Almost 76% of the respondents told that the responsible person for managing the wastes was they themselves, 19% municipality and 5% neighbor.

Health Status: More than half of the respondents were found to have no disease till the study time i.e. 60% and 40% were found to have some type of illness. It was found that 63% of the respondents had their family members sick at the time of study and 37% of them did not. This is not good as more than half of the respondents had their family members' ill though more than half respondents did not have any type of illness.

Table 4: Type of Disease the Member Suffering from (n=67)

Variables	Frequency	Percentage
Diarrhea	15	22.38
Fever	18	26.86
Common cold	5	7.46
Gastritis	5	7.46
Jaundice	5	7.46
Skin disease	5	7.46
Typhoid	3	4.48
Other	11	16.44

Among those who were sick, 22.38% had Diarrhea, 26.86% Fever, 7.46% Common cold, 4.48% Typhoid, 7.46% skin disease, 7.46% gastritis, 7.46% Jaundice and 16.44% others (Paralysis, Back pain Nerve pain, Headache, Piles, Mental Retardation, and Hypertension). While comparing the nationwide top ten diseases with the disease pattern of the study area Diarrhea comes first in the study area while diarrhea in the whole country comes in third position. This might be because the study population was taken from the study area only which is a very small population and which may not be generalized to the whole country.

CONCLUSION:

Nepal is one of the poor country of the world where there are people living in a poor sanitation condition. Though many improvements have taken place in the developmental infrastructure in comparison to the past, still people are suffering from most common diseases which have been already eradicated and removed from developed world. The study area was also suffered from poor sanitation problem. People of that area were very much ignorant about their personal hygiene, waste disposal, house cleaning etc. This was because of lack of knowledge and attitude of the peoples. Some of them though know about the importance of good sanitation, were not found to maintain the good sanitation condition because they were unable to convince other people and they could not do that alone.

From this research, it can be concluded that poverty and lack of awareness are playing a vital role in poor sanitation condition of people living in the study area. Lack of adequate safe drinking water sources, ill practiced personal hygiene, bad management of the wastes are some of the causes of poor sanitation condition and deteriorating health status of people living the study area. People were found to be suffering from fever and diarrhea. Most dwellings were poor thus, because of the crowded condition, inadequate ventilation and poverty the sanitation condition of the study area is very bad.

Slum dwelling people of the study area are not recognized by the government. Side by side there was not found any sanitation program by NGOs, and INGOs etc. who should be more responsible to conduct such programs. The quality of life is very poor in the study area.

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