

Knowledge and Practices on Prevention of Dengue Fever among Urban Slum Dwelling Adults

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Dengue is one of the major vector-borne diseases which are currently a burning public health issue in Bangladesh. The severity of dengue-related sickness and fatalities has dramatically grown in the last several years. Study was conducted to assess the knowledge and practices on prevention of dengue fever. A cross-sectional study was conducted among a total of 346 males and females adults those consented to participate in the study. Respondents were included randomly from selected areas in Korail slum. The survey was carried out by face-to-face interview using a pre-tested standardized and structured questionnaire. The study revealed that dengue fever occurred in 9% of the respondents. Only 17.3% had a good knowledge score (8 out of 11 items). Knowledge was significantly associated with education, income, and age ($p < 0.05$). Most of the participants (83.3%) knew that dengue fever is caused by female aedes mosquito bite, only 16.8% reported that they were not aware of the name of the mosquito causing dengue fever. A large portion (87.6%) of respondent reported that they don't know dengue fever is a viral disease. The majority respondents (91%) mentioned that the dengue outbreak starts in the rainy season. Most of the participants (87.3%) in this study believe that female aedes mosquito could breed in clear stagnant water and slightly over three a quarter (77.7%) participants reported that female aedes mosquito could breed in discard objects containing water. When it came to lowering their risk of contracting the dengue virus, over half of participants 200 (57.8%) said they followed good preventative measures, although a sizable portion 146 (42.2%) had inadequate preventive measures.

Key words: Prevention, risk, urban, slum

Introduction

Bangladesh's capital Dhaka has become a hotspot for dengue fever (DF). Dengue fever, the mosquito born disease has become a growing public health threat in Bangladesh due to its gradual increasing morbidity and mortality since 2000. In 2009, the country witness the worst ever dengue outbreak. Dengue fever is a disease caused by an essential viral arthropod-borne (arboviral) infection in humans, which has four serotypes and that is transmitted by aedes mosquito. It is regarded as the most important arthropod transmitted human viral disease, and constitutes an important global health problem. Dengue ranks as the most important, rapidly emerged disease in recent years and is endemic in all continents (DGHS, 2013). It has shown an increase due to various reasons-construction activities, lifestyle changes, deficient water management, improper water storage, stagnation of rain water in containers lying outside houses and practices leading to proliferation of vector breeding sites in urban, semi-urban and rural areas.

Materials and Methods

A descriptive approach was adopted to accomplish the objective of the study to assess the level of knowledge and practices on prevention of dengue fever among urban slum dwelling adults. For achieving this objective, the study was carried out systematically following the methodology given below. A work schedule was prepared including the entire task in sequence. The first four months were spent for thesis protocol, literature review and topic selection. The subsequent months were spent for questionnaire development, pretesting, data collection, data compilation, data analysis, report writing, printing and submission of the thesis. Literature review was done during the whole period. This study was conducted in Korail slum, Mohakhali, Dhaka-1212. The population in this study was residents of Korail Slum, Mohakhali, Dhaka, Bangladesh, who were living there for at least two year. A 346 adults (aged 18 years to 60 years) were interviewed using a pre-tested standardized questionnaire regarding their knowledge, and practices on prevention on DF.

Respondents were selected from different places, such as houses, local markets and public institutions in order to collect data from

people of various backgrounds in the slum area. The largest single slum in Dhaka was Korail in Mohakhali near Gulshan, with more than 100,100 people. The population in this study was residents of Korail Slum, Mohakhali, Dhaka, Bangladesh, who were living there for at least two year. A 346 adults (aged 18 years to 60 years) were interviewed using a pre-tested standardized questionnaire regarding their knowledge, and practices on prevention on DF. A semi structured questionnaire was prepared in English then translated into Bangla. A completed questionnaire was prepared according to the objectives to get information regarding different variables. The questionnaire comprises of questions divided in to three (3) parts. The first part contains ten (10) questions related to socio-demographic characteristics of respondents. The second part include 11 questions concerning knowledge on dengue fever. The last part contain 10 questions regarding practices on preventive of dengue fever. Data were collected by using convenience sampling, the study participant were approached for a face to face interviews. As far possible before data collection, the detail of the study has explained to each respondent and informed written consent has been taken. In this study data collection and processing, data were compiled and analyzed according to the objectives and variables by IBM software SPSS (statistical package for social science) version 26. Descriptive statistics: Frequency, percentage, mean, SD (standard deviation) were done to describe socio-demographic characteristics and selective attributes of the respondents. Inferential statistics: To see association and statistically significance between independent variable and dependent variables chi-square and Mann-Whitney U test were done at 5% level of significance. A p-value of < 0.05 was considered to be statistically significant. The analyzed data were presented by distribution through suitable tables and graph using Microsoft word and Microsoft Excel. Result was expressed as frequencies and crosstabs for categorical variables. Results also were expressed as chi-square test, Mann-Whitney U test of different variables.

Results

This was a descriptive cross-sectional study conducted among the residents of Korail Slum, Mohakhali, Dhaka. Carried out on 346 urban slum dwelling male and female adults regarding knowledge and practices on prevention of dengue fever. The results of such data are presented in this chapter. The following headlines were used to display the examined data:

Table 1 shows the majority 288 (83.2%) participants knew that dengue fever is caused by aedes mosquito bite, while 58 (16.8%) reply don't know (Table 1). Table 2 further data shows that a large number of participants 302 (87.3%) knew that aedes mosquito could breed in clear stagnant water (Table 2) Table 3 shows the distribution of the respondents according to their responses regarding practices on dengue fever. For personal protective measures, Out of 346 participants 181 (52.3%) used mosquito bed net, and mosquito repellent coil 133 (38.4%). Only 7 (2%) use a mosquito repellent spray. A large majority participant 334 (96.5%) uses fan to reduce mosquitoes at home. In addition, 316 (91.3%) participants claim that they used to cover water containers at their home to prevent mosquito breeding. Among the participants 290 (83.8%) stated that they kept the tubs clear and drain the stagnant water. Only 45 (13%) respondents had screen windows in their home. A vast majority 234 (67.6%) participant had a proper garbage disposal system claiming they had maintained proper storage collection and disposal of waste to reduce the larval habitats. A large portion 305 (88.2%) respondent reported that they regularly examined any discard things/objects that con hold water around your house, they checked out discarded cans, buckets, or stored water in their yards which is the perfect breeding grounds for mosquitoes. Most of the participants 281 (81.2%) mentioned that they kept neat and clean surrounding (Table 3). Table 4 shows,

in this study 335 (96.8%) Respondents identified family and friends were the leading source of information about dengue fever followed by television 324 (92.8%) among the participants. On the other hand, 122 (35.3%) participant stated that social media were source of information of dengue fever and 88 (25.4%) respondents had obtained knowledge through health personnel, only 36 (10.4%) from books or newspaper, 14 (4%) from advertisement/billboard and 7 (2%) stated radio were source of knowledge regarding dengue fever (Table 4) shows that more than 99% of the respondents had heard about DF/DHF during the survey period. More than 90% of the respondents knew that dengue was transmitted by mosquito bites. While it was commonly recognized that the dengue transmitting mosquito bites during daytime, only 52% of the people overall knew that this mosquito breeds in containers; 23.5% of workers were aware of this fact as compared with 64% of the professionals.

About 50% of the residents thought that destroying the breeding places was important in controlling dengue (Table 3). More than 52% of the people surveyed thought that the use of insecticide-treated nets could be helpful, even though 93.5% knew that the mosquito vector, *Aedes aegypti*, bites during daytime.

Table 1: Distribution of the respondent's knowledge on dengue fever is caused by aedes mosquito bite (n=346)

Dengue fever is caused by aedes mosquito bite.		
Response	Frequency (f)	Percentage (%)
Yes	288	83.2
No	0	0
Don't know	58	16.8
Total	346	100

Table 2. Distribution of the respondent's knowledge on aedes mosquito could breed in clear stagnant water (n=346)

Aedes mosquito could breed in clear stagnant water		
Response	Frequency (f)	Percent (%)
Yes	302	87.3
No	0	0
Don't know	44	12.7
Total	346	100

Table3: Distribution of the respondents according to their response regarding preventive practices of dengue fever (n=346)

Statements	Yes		No	
	(f)	(%)	(f)	(%)
Do you use a mosquito bed net?	181	52.3	165	47.7
Do you use a mosquito repellent coil?	133	38.4	213	61.6
Do you use a mosquito repellent spray?	7	2	339	98
Do you use a fan to reduce mosquitoes?	334	96.5	12	3.5
Do you practice covering water containers at home?	316	91.3	30	8.7
Do you keep the tubs clear and drain the stagnant water?	290	83.8	56	16.2
Do you use screen windows to reduce mosquitoes?	45	13	301	87
Do you maintain the proper disposal of garbage?	234	67.6	112	32.4
Do you examine any discard things/objects that con hold water around your house?	305	88.2	41	11.8
Do you keep neat and clean surrounding?	281	81.2	65	18.8

Table 4: Distribution of the respondent's according to source of information on dengue fever (n=346)

Statements	Yes		No	
	(f)	(%)	(f)	(%)
Do you know any information from health personnel?	88	25.4	258	74.6
Do you know any information about dengue fever by TV?	324	92.8	25	7.2
Do you know any information about dengue fever by Radio?	7	2	339	98
Do you know any information on dengue fever by books or newspaper?	36	10.4	310	89.6
Do you know any information on dengue fever from social media?	122	35.3	224	64.7
Do you know any information on dengue fever from family & friends?	335	96.8	11	3.2
Do you know any information about dengue fever by advertisement/billboard/banners?	14	4	332	96

Table 5 shows the association between the level of knowledge regarding dengue fever and age group of the respondents. A chi-square test for independence with $\alpha=.05$ was used to assess whether the age group was related

to the level of knowledge on dengue fever. The Pearson chi-square test was statistically significant, $\chi^2 (2, n=346) = 7.208, P=.027$. Association between level of knowledge regarding dengue fever and age group of the respondents was statistically significant (<0.05) (Table 5)

Table 5: Association between the age group of the respondents and level of knowledge regarding dengue fever (n=346)

Age group	Level of knowledge regarding dengue fever				Chi-square, P-value
	Good knowledge		Poor knowledge		
	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)	
18-32 years	26	43.3	107	37.4	$\chi^2=7.208$ $p=.027***$
32-46 years	31	51.7	124	43.4	
46-60 years	3	5	55	19.2	

A chi-square test for independence with $\alpha= .05$ was used to assess whether the education level was related to the level of knowledge on dengue fever. The Pearson chi-square test was statistically significant, $\chi^2 (2, n=346)$

$=33.129, P<.05$, with phi (ϕ) coefficient of .309, there for we can say there is relationship between level of education and level of knowledge (Table 6).

Table 6: Association between the level of education and the level of knowledge on dengue fever among the respondents (n=346)

Association between level of knowledge and education					
Level of education	Level of knowledge				Chi- square, p- value
	Good knowledge		Poor knowledge		
	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)	
Illiterate	16	26.7	138	48.3	$\chi^2=33.129$ $p=.001***$
Primary	17	28.3	110	38.5	
Above primary	27	45	38	13.3	
Total	60	100	286	100	

Discussion

As Bangladesh is situated in the South East Asian region, vector-borne diseases like dengue are perceived as a major health threat.

Over population, impromptu and uncontrolled urbanization are identified as the key factors for increasing transmission of mosquito-borne diseases like dengue. Socio-demographic factors and KAPs among the population play a critical role in both

incidence of dengue epidemics and implementation of control measures. To control the dengue virus, it was previously revealed that lack of knowledge about clinical features or control measures is the most common problem (Hossain *et al.*, 2011). Slum dwellers lack awareness and preventative activities that put them at risk for DF. The current research was conducted to assess the knowledge and practices on prevention of dengue fever among urban slum dwelling adults, in Korail slum, Mohakhali, Dhaka-1212. This study provides greater insight in to the contributing factor for knowledge, belief, and practices among the urban slum dwellers.

In the present study included 253 (73%) male and 93 (27%) were female participants. More than half 69.7% of the respondents were aged below 40 and (30%) participants aged equal to or above 40. The average age of the participants was Mean±SD

35.5±10.6 years. Respondents year of residence in slum Mean±SD 35.5±10.6 years. The highest number 315 (91%) respondents were not infected with dengue fever.

A study conducted by Sharmila and Habib (2012) from the selected area of Malibagh, Dhaka, found a total of 193 respondents participated the majority (53.9%) respondents were female and rest (46.1%) were male among them (68.4%) aged were less than 40 years and rest of the participants were more than or equal to 40 years. Most of the respondents belong to this study had not personally experienced (91%) with dengue fever nor any of their family member infected with this disease.

Another similar study revealed that vast majority of participants (98.4%) did not have any previous infections, only (1.5%) participants reported positive dengue history (Das *et al.*, 2012). In this study, among the 346 respondents level of education maximum 154 (44.5%) were no formal education or illiterate, followed by 127 (36.7%) respondents educational qualification was up to class five (primary) and 65 (18.8%) respondents educational qualification was above primary.

Among the total respondents, highest number respondents 168 (48.6%) were labor. The household monthly average income (BDT) was Mean±SD 14208.09 and SD±2922.68.

A closely related study in Dhaka city, found more than 50% did not have any education. Many indicated they have limited income sources, such as day workers, rickshaw pullers, vehicle drivers, home maids, etc. Therefore, we considered them workers with limited income compared to others without any earning source (Rahman *et al.*, 2013).

Significant differences found among the participant's level of knowledge based on their education, occupation, income, and age ($p < 0.05$). This results ties well with previous studies wherein education was significantly associated with the level of knowledge (Sharmila and Habib *et al.*, 2012). A similar conclusion was reached by Shrinivasa *et al.*, (2013), who found that most of the respondents did not have adequate knowledge of dengue.

According to the present study's findings, slum dwellers lack fundamental DF knowledge. Finding of this study show most the participants 288 (83.2%) knew that dengue fever is caused by female aedes mosquito bite, only 58 (16.8%) reported they were not aware of the name of the mosquito causing dengue fever. A large portion 303 (87.6%) of respondent reported that they don't know dengue fever is a normal flu or viral disease. The majority respondents 315 (91%) mentioned that the dengue outbreak starts in the rainy season. In the present study, nearly most of the respondents heard of dengue though many of them do not have still the basic knowledge on dengue. For example, there were still misconceptions about the breeding sites of the dengue vector. Many of the respondents stated the dirty and unclean water such as sewage drains are the most common breeding sites for dengue

mosquitoes. Most of the participants 302 (87.3%) in this study belief that female aedes mosquito could breed in dirty/clear stagnant water and slightly over three quarter 269 (77.7%) participants reported that female aedes mosquito could breed through discard objects containing water.

month for mosquito control, while another 50% spent US\$ 2 -10 per month for this purpose. Among the slum-dwellers, 40% spent less than US\$ 10; which included 28% spending less than US\$ 2. Nearly 60% of the slum-dwellers did not spend any money for mosquito control even during the peak Aedes season.

More than 75% of the residents had piped water facilities (Table 5). A water storage system was present in 77% of the houses. Overhead water tanks were present at 72% of the multistoreyed buildings and 47% of the independent houses. Earthen jars were used in 34% and 17% of the slum houses and semi-pucca houses respectively. Drums were used in 20.5% and 23% of the slum houses and semi-pucca houses respectively. In independent houses, earthen jars (6.8%) and drums (12.5%) were seldom used. The residents were asked whom they thought to be responsible for mosquito control in the city. Most of the respondents (66.5%) replied that both the government and city residents were responsible (Table 6).

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