

Original Research Article

Dhaka city drivers' community knowledge, attitude and practice on water, sanitation and hygiene and associated factors: a descriptive cross-sectional study

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ABSTRACT

Background: Water, sanitation and hygiene (WASH) is to consider the first step to improving the public health of urban people. Primary health-related risk factors are largely induced by urban people's daily WASH practice and this is the leading cause of mortality and disability-adjusted life-years (DALYs) globally. About 28% of Bangladeshi people are living in urban areas and the megacity Dhaka accounts for around 40% of the urban population. In this explanatory research, we explored the knowledge, attitude and practice on WASH and associated factors of drivers' communities in Dhaka, Bangladesh.

Methods: The study was an observational descriptive cross-sectional study and both quantitative and qualitative data were collected. The study was conducted between 03 September 2020, and 28 February 2021. A total of 109 drivers, 8 focus group discussions (FGDs) and 8 key informant interviews (KIIs) were also conducted.

Results: The vast majority of drivers were middle age and a few were younger. The vast majority of drivers were experienced and the current job duration was about 7.94 ± 8.33 years. The majority of drivers usually passed leisure time by playing ludo, chess, carrom, cards, chatting online on Facebook (FB), watching the drama on YouTube, watching television (TV), hearing radio programs and gossiping with colleagues. Two-third of the drivers disposing of food waste in the dustbin, and one-third kept inside the vehicle aiming to dispose of it dustbin although some of them throw it into the street.

Conclusions: Study findings suggested that there is a need to create WASH facilities and intensive campaigns on hygiene and sanitation to create awareness among aged drivers to practice health and hygiene during duty hours.

Keywords: WASH, Urban health, KAP, Dhaka, Bangladesh

INTRODUCTION

Dhaka is one of the densely populous raising megacities in the world and around 20 million people living with a density of 23,234 people per square kilometer.¹ The number of vehicles is increasing with the faster raising of population density in Dhaka city. Statistics show that the number of registered vehicles was 593077 (2010) and 1100314 (2018) respectively. This figure meant that the number of registered vehicles become double within 8

years.² There are about 3.1 million registered vehicles in Bangladesh and around 1 million unregistered vehicles. The majority of unregistered vehicles are transported passengers inside Dhaka city.³ Above all evidence indicates that the number of vehicles with geometric percentage whereas the facilities for vehicle drivers did not increase following the increase the numbers of vehicles. Dhaka megacity people have suffered various water, sanitation and hygiene (WASH) related facilities like

quality water supply, toilet facility, drainage facility, and waste management.

Millennium development goals (MDGs) and sustainable development goals (SDGs) have given the highest priority to the WASH-related agenda because WASH is to consider the first step to improving the public health of urban people. Primary health-related risk factors are largely induced by urban people's daily WASH practice and this is the leading cause of mortality and disability-adjusted life-years (DALYs) globally.⁴ About 3.3 million people have no access to basic sanitation globally and the situation is worse in the developing countries' urban areas.⁵ The majority of Dhaka city vehicle drivers are low and low-middle-income groups and parking facilities are very limited in the urban area. Above all push, factors do not allow vehicle drivers to follow health and hygiene practices during official duty hours. Evidence shows that scarcity of safe water, poor hygiene, and lack of good sanitation practices are the main causes of diarrhea, one of the underlying causes of malnutrition, and a driver of numerous developmental indicators.⁶ Usually at Dhaka city, the facility for disposal of human wastes is not satisfactory, hygiene practices are generally poor; and water for household use is often inconvenient, insufficient, and contaminated. The study aimed to understand the knowledge attitude and practice (KAP) of vehicle drivers and assess the WASH facilities for delivers communities in the megacity of Dhaka.

METHODS

This was an observational descriptive cross-sectional exploratory study. Both quantitative and qualitative data were collected. Data was collected over the period of six months. A study protocol was developed before starting the field level data collection. The data collection sites selected purposively. Important administrative government office and urban service related organizations vehicle drivers were interviewed to collect quantitative data and conducting FGDs. A rigorous literature review was conducted to understand the dimension of the problems and ensure the relevance of the questionnaire content. Simple random sampling technique was used to collect the data. Onsite visual inspection through observation also has been employed as part of exploration of KAP status of WASH situation in the study area.

A quantitative format was developed to understand the perception of drivers' community about WASH facilities and to measures their KAP. The qualitative method included focus group discussions (FGDs) with drivers' communities and key informant interviews (KIIs) with local authorities and policymakers.

Following the Fisher's equation (Fisher et al 1991) with a margin of error $\pm 10\%$, a total of 109 respondents were interviewed which is statistically representative and robust for an exploratory study.

Data collection and quality control

A structured questionnaire was prepared including the following variables: socio-economic and demographic conditions of respondents, and their KAP on WASH, and understanding about COVID-19. Questionnaire contain both open and close ended questions. The interview schedule was pre-tested before commencing the data collection. The interviewers were trained for clear understanding of the study goal and every question of interview schedule. Consistencies of questions were checked through discussion with a public health expert and comments were immediately incorporated in the final questionnaire. The respondents were asked to participate in the study voluntarily. Those who agreed to participate in the study were requested to sign in the consent form.

Statistical data analysis

Statistical package for the social sciences (SPSS) statistical package were used for analyzing quantitative data. The filled-in questionnaire were checked and edited immediately after collection of the data. Again, data were cleaned before analysis. Both univariate and bivariate tables were generated during analysis. Data analysis included frequency distribution, cross-tabulation, correlation and association and statistically significant test between variables (X^2 , p-value and confidence interval (CI)).

Qualitative data analysis

The qualitative data were analyzed manually using content analysis technique. Categorization were done according themes and sub-themes followed by compilation of information. The verbatim were documented and recorded and then were supplemented to quantitative and qualitative data.

Ethical consideration

Written and verbal consent was obtained and study aim was explained to the respondents. Confidentiality of the information was assured by using an anonymous consent form.

RESULTS

The study data revealed that apparently a large number (64%) of the drivers aged between 32 to 57 years with a mean age of 36.34 ± 9.84 years means a large number of drivers were middle age and few were younger. About the drivers 86% were married and 14% unmarried. We observed diversity of religions among the drivers. About 82% of drivers were Muslim, followed by Hindu (10%) and Christian (4%). The average family size among the drivers was found at 4.68 ± 1.73 , ranging from 2 to 9, which means that drivers' family size is very close to our national statistics. The majority (63%) of the drivers had junior school certificate (JSC), 34% had secondary school and

higher secondary certificate, and about 1.8% had a graduate certificate. The total monthly income of a driver was 27030±12197 and the average total monthly family income was 38036±19031, total monthly family expenditure was 26324.77±12292.56. The highest expenditure was for food (13546.88±6736.82), education (6761.46±4796.60), and treatment (3815.59±3219.73) respectively. About 36.7% of the drivers' household head principal occupation was government service followed by motor driver (31.2%), private service (7.3%), housewife (12.8%), unemployment (4.6%), and farmer (2.8%). About 13.8% of drivers or their family members are/were enjoying the benefit of the government social safety net program.

Experiences of respondents about driving, leisure time and food hygiene

About 84% of drivers had driving experience before joining the present job and the mean years of experience as a driver in the current job was 7.94±8.33 years. On average 20% of drivers drive 1-2 hours per day, 26% drive 3-4 hours, 32% drive 5-7 hours, and 22% drive 8-12 hours per day. About 30% drivers drive about 46-60 kilometer per day followed by 21-45 kilometer (22%), 12-20 kilometer (20%), 61-85 kilometer (16%) and 86-150 kilometer (12%). Around one-third of drivers had some sort of accident experience in driving life. The majority of drivers usually passed leisure time by playing ludo, chess, carrom, cards, chatting online on FB, watching drama on YouTube, watching TV, hearing radio programs and gossiping with colleagues. About 26% of drivers taken their breakfast and lunch at the organization staff cafeteria, 18% taken it food corner the outside of the organization, 32% taking it inside of their vehicles, and 24% took it at the restaurant outside. The majority (58%) of drivers disposing of food waste in the dustbin, about 32% kept inside the vehicle and later on disposing of it dustbin and 10% throw into the street. About 71% of drivers parked their vehicles inside their organization parking area followed by in front of the organization along with roadside (17%), and other places (3%). The reasons for parking the vehicles on the roadside were no permission for parking vehicles inside the organization (52%) shortage of parking space (29%), a short distance of officials' offices (15%), and no instructions from vehicle owner/s about parking (4%). About 57% of respondents refresh using toilets inside the organization, 18.6% refresh using public toilets, 10.5% refresh by using city corporation/non-government organization (NGO) mobile toilets, and 14% refresh using other places (mosque toilet, open place, and park areas). About 89% of drivers think that water supply system is/was available in the toilet; followed by lighting (82%), hands washbasin (77%), and water pat (70%), water tank for flushing (55%), higher or lower commode (51%), hygiene materials (40%) and exclusive urine disposal system (6%). About 46% of drivers use organization toilet for refreshing purposes, 34% using public toilet and 20% use roadside mobile toilet. About 90% drivers happy with water supply system, followed by lighting (86%), hands

wash basin (78%), water pot (71%), water tank for flushing (55%), higher or lower commode (51%), hygiene materials (45%) and exclusive urine disposal system (4%).

However, the majority of respondents (72%) were unhappy about the workable condition of those materials. Regarding the cleanness of the toilet about 30% found the toilet always clean, 18% found often clean, 44% found sometimes clean and 8% found never cleaned. The majority (73%) of the drivers opined that cleaner disposed of toilets waste into place specified by city corporation or organization area compound and 27% said cleaner dump waste into open space or open dustbin. Respondents were not happy with the organization toilet hygiene and sanitation and reason of dissatisfaction were unpleasant smell (98%), lack of cleanliness (79%), lack of hygiene materials (76%), lack of privacy (9%), no lighting (3%) and unavailability of water supply (2%).

Drivers' community knowledge, attitude and practice on WASH

About 72.5% of respondents had good knowledge on general hygiene/cleanliness, 57% were informed on hand hygiene/cleanliness, 82% had an understanding of personal hygiene, 66% know about safe water and maintaining of food hygiene/cleanliness, 38% know about safe disposal of faeces and 54% had an understanding on safe disposal of solid waste. About 50% drivers wash their hand after using latrine, 14% wash hand before preparing the meal, 48% did it after touching animals, 6% wash hand after handling animal's faeces, 2% wash hand before feeding others, 16% wash hand after taking care of sick family members and 10% wash hand before eating. The majority (76%) respondents opined that garbage and wastewater is the sign or evidence of lack of sanitation and hygiene in the surrounding environment followed by bad/foul smell in the environment (38%), lack of latrine (22%), open defecation (22%), adult and infant faeces (18%) and animal faeces (6%).

For the overall score, young adults have a statistically significant higher knowledge score compared to adults and aged drivers (Table 1). This means there was a significant difference in knowledge by age. There is no difference in overall knowledge score between vehicle drivers who park their vehicle inside the organization and the roadside of their organization.

About 54% did not visit any suspected COVID-19 person, 32% sometimes visited, 4% visited regularly and 10% rarely visited. About 43% of drivers are often walking crowded places, 42% walking crowded places rarely, 8% regularly while 16% ignore it. About 74% did not visit friends in the ongoing COVID-19 pandemic, 16% visited rarely, 6% visited sometimes and 4% regularly visited overseas person. About 60% practice regular hand wash, 70% using masks, 48% maintain social distance, and 38% had an effort for maintaining physical distance to prevent the spreading COVID-19. About 47% of respondents

suggest creating the facilities, followed by improving the cleanliness facilities (43%), to build a new toilet with space for wadu (41%), waiting room (31%), to control the outside users (25%), to create awareness (19%), build toilet outside (12%) and hygiene materials (10%).

Qualitative findings

We had conducted FGDs with vehicle drivers and purposeful KIIs were conducted with high officials to understand the depth of the problem. The majority of the drivers had a good understanding of hand wash before and after meals while significant differences were found between food hygiene and disposal of solid waste. The majority of the participants were young adults and interested to talk about personal hygiene issues. The drivers faced difficulties during parking their vehicle outside of the organization and this unauthorized parking push them to practice unhealthy hygiene activities. Participants said that Dhaka is a highly densely crowded city and WASH-related facilities are not available for drivers and common people. In some cases, drivers cannot leave their vehicle on the roadside due to security concerns and its negative impact on their daily personal hygiene practice. For this reason, most drivers are not aware of their health and hygiene practices during duty hours.

Although the majority of them believe that lacking health and hygiene causes diarrheal disease and typhoid and exposes them to different intestinal parasites. The

interesting fact is that drivers’ community now about open defecation but sometimes they had practiced it. The participants mentioned that WASH facilities are quite poor for the driver’s community. There is no sanitation or water supply for them. Drivers often use the mosque’s toilet facility nearby that is overcrowded and usually not properly cleaned. They said, “no matter what we have to stay on road, there is no alternative.” Most of the driver gossiping or playing cards/ludo with peer groups nearby cars. Some of them pray during off time. The current WASH situation is one kind of urban health disaster and immediate action is necessary. About sanitation and hygiene, cleaners mentioned that two cleaners working regularly but it’s very difficult to manage large numbers of toilets. Another big concern was that users were not aware of cleanliness and hygiene issues.

For instance, there were baskets in the toilet but they put waste materials into the basin and commode. In some cases, users were not aware about clean the commode properly after use it and the next user could not use it healthy way. There was a shortage of hygiene materials and in most cases, authorities does not supply them. KII participants also believe that in Dhaka urban areas about 95% of public and private offices do not have extra hygiene facilities. KIIs participants suggested creating new facilities with engaging drivers’ communities to increase their knowledge about WASH practice and promote awareness programs on WASH for the aged driver community.

Table 1: Average knowledge score of respondents on WASH.

| Age categories (years) | Hand hygiene (%) | Food hygiene (%) | Safe disposal of faeces (%) | General hygiene (%) | Clean/safe water (%) | Disposal of solid waste (%) | Personal hygiene (%) | Total (%) | 95% CI (%) | P value (%) |
|------------------------|------------------|------------------|-----------------------------|---------------------|----------------------|-----------------------------|----------------------|-----------|----------------|-------------|
| 20-25 | 12.50 | 5.50 | 2.50 | 15.50 | 10.50 | 2.00 | 17.50 | 19.50 | [12.80, 5.80] | 0.03 |
| 26-30 | 10.00 | 10.50 | 3.50 | 12.00 | 15.00 | 1.50 | 20.50 | 23.00 | [9.60, 11.70] | 0.04 |
| 31-35 | 5.00 | 18.50 | 4.50 | 15.00 | 14.00 | 2.00 | 12.00 | 16.50 | [7.90, 13.80] | 0.01 |
| 36-40 | 6.50 | 16.50 | 3.50 | 6.50 | 6.00 | 6.50 | 5.00 | 7.50 | [10.80, 11.60] | 0.06 |
| 41-45 | 10.50 | 6.5 | 7.00 | 7.00 | 4.00 | 12.00 | 6.50 | 12.50 | [8.90, 12.70] | 0.06 |
| 46-50 | 9.50 | 3.5 | 9.50 | 8.50 | 5.50 | 6.50 | 4.50 | 8.50 | [4.50, 11.85] | 0.07 |
| 51-55 | 1.50 | 2.5 | 3.50 | 3.50 | 2.5 | 7.50 | 8.50 | 5.50 | [5.75, 13.97] | 0.09 |
| 56-60 | 1.50 | 6.5 | 6.50 | 4.50 | 8.50 | 20.0 | 7.50 | 6.50 | [17.85, 4.50] | 0.08 |
| Total score | 57.00 | 70.0 | 38.0 | 72.50 | 66.00 | 54.50 | 82.00 | 100.0 | - | - |

$\chi^2= 47.58$; gamma $V=0.18$, lamda $\lambda=0.21$, $df=55$, sig; $p\leq 0.05$

DISCUSSION

We had collected data from four important administrative offices sits to understand the in-depth WASH-related KAP of the drivers’ community in Dhaka. Both quantitative and qualitative tools were used to collect data from the drivers. The study had three goals; first to make a quick assessment of the knowledge, attitude, and practice, second to determine drivers’ sanitation and hygiene practice during staying at organization areas, and third to understand the

level of awareness of drivers about the ongoing COVID-19 pandemic. The vast majority of drivers were middle age and a few were younger. Majority (86%) drivers were married and the average household size was 4.68 ± 1.73 . Bangladesh bureau of statistics (BBS) and household income and expenditure survey (HIES)-2016 data shows that the average size of households was 4.90 in 2001 and 4.06 in 2016.⁷ Our finding is very close to our national household size. Our data indicate that the monthly income and expenditure of drivers are almost the same and the majority (84%) of drivers’ families living with them at

Dhaka. The interesting fact is that still 92% household head is male and among them 54% working in the informal sector. About 18% of drivers or their family members enjoying government and NGOs social safety net benefits.

The vast majority of drivers had driving experience before joining their current job. We found a strong association between the age of drivers and years of service. The majority of drivers driving the vehicle on an average of 5.5 hours and drive 53 kilometers per day while they stayed an average of 6 hours at their organization areas. The important fact is that about 34% of drivers had experienced some sort of accident in their job life. Our study is supported by Ahsan et al that about 30% of Bangladeshi vehicle drivers had any kind of accident experience.⁸ The concerning issue is that on an average drivers spent 3 hours for recreational/lazy time during office hours. Drivers offered their prayer inside their organization mosque and one-third of the driver had taken breakfast and lunch inside their vehicles. The most important finding is that two-thirds of the drivers disposing of food waste in the dustbin, and one-third are kept inside vehicles aiming to dispose of it dustbin although some of them throw it into the street. Around half of the drivers parking, their vehicle roadside and the reasons of parking of roadside were no permission for parking at inside the organization, shortage of parking space, the short distance of vehicle owner office and no instruction from vehicle owners for proper parking. We couldn't compare our findings with other studies due to the unavailability of data on this topic in Bangladesh. Our study data reveal that majority of drivers had no access to hygiene and well-decorated toilet facilities for refreshing purposes and they used the public toilet and roadside mobile toilet as well as open defecation places. The majority of drivers opined that water supply, lighting water jar, and hand wash basin are available there but hygiene materials, exclusive urine disposal system, and enough basket for waste materials are not available to water jar in the toilet. For these reasons, most of the respondents were unhappy with this sanitation and hygiene condition.

The drivers who couldn't find it workable usually prefer to go outside petrol pump toilets, mosque or hospital toilet and some cases other office toilets and open space. Most of the drivers had no idea about which department is responsible for maintaining and cleaning the toilet inside the organization. But we observed they had good knowledge about disposing of the waste and garbage from the toilets. The vast majority of the respondents are unhappy with unpleasant smells, lack of cleanliness, and lack of hygiene materials. Our study findings suggest that the majority of the drivers had a moderate level of understanding of hygiene practice and in most cases, their score was below 70. Our qualitative findings also show that the majority of the drivers had a good understanding of hand wash before and after meals while significant differences were found between food hygiene and disposal of solid waste. The quantitative and qualitative findings indicate that the current WASH situation is to be considered urban health disasters and immediate action is

necessary. KIIs participants mentioned that in Dhaka urban areas about 95% of public and private offices do not have good quality hygiene facilities. Experts opined to create new facilities with engaging drivers' communities to increase their knowledge about WASH practice and promote awareness programs on WASH for the driver community. We got mixed reactions from the drivers about COVID-19 awareness and one-third of drivers regularly walking in crowded places, some of them had visited their friends or related who recently come from abroad or who had some symptoms of COVID-19. Usually, drivers followed regular hand wash, using masks, social distance, and physical distance for avoiding the spreading of COVID-19 infection. About nine suggestions were put forward by the drivers. The highest percentage of respondents to create the facilities, followed by to improve the cleanliness facilities, to build a new toilet with space for wadu, waiting room, to control the outside users, to create awareness, build toilet outside and provide hygiene materials in the toilet.

CONCLUSION

Study findings suggested that there is a need to create WASH facilities and intensive campaigns on hygiene and sanitation to create awareness among aged drivers to practice health and hygiene during duty hours.

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