

**Original Article**

**ACCESSIBILITY TO HEALTH CARE SERVICES OF UPAZILA HEALTH COMPLEX: EXPERIENCE OF RURAL PEOPLE**

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**ABSTRACT**

**Background:** Upazila health complex (UHC) is the first referral health facility at primary level of health care delivery system in the country. Rural people attend the UHCs to meet their health care needs and demands. But accessibility of the rural people to the UHCs is still not up to the mark.

**Objective:** This study was conducted to assess accessibility of rural people to health care services of UHC.

**Methods:** The study was a cross-sectional study, which was conducted at the Kaliakair UHC of Gazipur district in Bangladesh during the period from January to December 2016. The study included 300 rural adults, who were selected systemically. Data were collected by face-to-face interview with the help of a semi-structured questionnaire. Prior to data collection, informed written consent was taken from each participant.

**Results:** The study revealed that males (51.3%) and females (48.7%) were very close in proportion with mean age of 35.73(±11.74) years. More than three fourth (77.3%) were married and 31.3% had primary education while 28.7% were illiterate. One third was housewives; average family size was 5.43 (±2.54) and average monthly family income was Tk.13920 (±10290.75). Around half of the participants choose the UHC for effective treatment and due to close distance from their residence while one third for low cost treatment and free of cost treatment. Around half of them didn't find any display board at the UHC. More than three fourth (82.0%) regarded doctor's behavior as 'Good' while behavior of supporting staff was regarded 'Good' by 66.0% participants. About half of the participants went to the UHC by rickshaw and 32.0% on foot. Average waiting time was 23.99 (±15.07) minutes to get access to treatment. Off all, 62.0% got full course of prescribed drugs but majority (71.3%) didn't get access to advised laboratory facility. Most (82.7%) could not be admitted in the hospital due to insufficient bed (24.2%) and inadequate treatment facility (22.6%), manpower (62.8%) and drug supply. Overall accessibility to UHC was 'good' (21.3%) followed by 'average' (31.3%) and 'poor' (47.3%). It was found that females (53.3%) had significantly ( $p<0.05$ ) poor accessibility to the UHC services than their counterpart males (41.1%). On the contrary, young adults, elderly, illiterate and primary education groups had significantly ( $p<0.05$ ) 'poor' accessibility to UHC services. Higher education (42.9% Masters and 36.4% Graduates) group had significantly 'good' accessibility. More than half (53.1%) of the service holders and majority (60.0%) of higher income (Tk.30001-50000) group had had 'average' and 'good' accessibility respectively, which is statistically significant ( $p<0.05$ ). Barriers to accessibility included long waiting time (67.0%), inadequate drug supply (62.0%), limited laboratory facility (40.0%), inadequate manpower (37.9%) and poor cooperation of the staff (32.0%) and communication (18.4%).

**Conclusion:** To improve accessibility of the rural people to the health care services of the UHC, associated problems must be overcome by effective measures and program interventions.

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**Key words:** Accessibility, Rural people, Experiences, Health care services, Upazila health complex.

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**INTRODUCTION**

Bangladesh has a good public health infrastructure network. The country’s health care delivery system consists of three tier network of health care facilities. First tiers are Upazila Health Complexes (UHC) and Union Health and Family Welfare Centers (UH&FWC). These are outpatient facilities for both health and family planning services. The UHCs provide treatment to the cases referred from union level and also refer them to the district/ medical college hospitals when necessary. Second tier is District hospitals. Third tier is tertiary level hospitals like specialized hospitals, institutes and medical college hospitals are equipped with specialized manpower and modern equipment to provide specialized care and treatment of referred cases from the district hospitals and health facilities from the country<sup>1</sup>.

At the upazila level, the Upazila Health and Family Planning Officer (UHFPO) is responsible for the health and family planning services of the upazila. Each UHC generally consist of eight doctors, one dental surgeon, two pharmacist, two laboratory technicians, one radiographer, one dental technician, five nurses, one mechanic and various auxiliary personnel. The UHFPO is also assisted by the health inspector, sanitary inspector and other staffs. Of course many posts remain vacant. At this level domiciliary health and family planning service is provided which comprises of counseling on family planning services, preventive, promotive health care and treatment of minor ailments<sup>1</sup>.

It is evident that accessibility of the rural people primary level public health facilities All these realities especially to the upazila health complexes is not up to the mark and they are not well satisfied with the health care services of the UHCs. But to meet the health care needs and demand of the rural people their accessibility to upazila health complexes and other primary level public health facilities must be ensured and accordingly demand based health care services must be provided to those health facilities. Considering theses realities, this specific study was designed to assess accessibility of the rural people to health care services of upazila health complex. The study findings will contribute to identification of accessibility to health care services of UHC and accordingly will help to improve the quality and utilization of health care services of the UHC throughout the country.

**MATERIALS AND METHODS**

**Study setting:** The study was conducted at the Kaliakair UHC of Gazipur district of Bangladesh during the period from January to December 2016.

**Study design:** The study was a Cross-sectional Study to assess the accessibility of the rural people to health care services of upazila health complex.

**Sample size and sampling:** The sample size was calculated by using the formula:  $n = z^2 pq / d^2$ . Here, n=desired sample size, z=standard normal deviate usually set at 1.96 which corresponds to 95% confidence level, p=prevalence (accessibility to UHC: 39.3%)<sup>2</sup>. Considering those parameters and design effect (2), the calculated sample size was 374. On the basis of exclusion criteria and non-responses, finally 300 participants enrolled in the study. Participants were included following systematic random sampling technique.

**Data collection:** Data were collected by face-to-face interview with the help of pre-tested semi-structured questionnaire.

**Data analysis:** Data analysis was done with the help of SPSS software. Descriptive statistics included frequency, percentage, mean, standard deviation while inferential statistics included chi-square test to find association between accessibility and diverse independent variables.

Accessibility to UHC services was assessed on the basis of findings of ten questions related to accessibility. Each question had two options; ‘Yes’ and ‘No’; ‘Yes’ answer incurred ‘1’ while and ‘No’ answer incurred ‘0’ score. The total score was ranged from 0 to 10. Finally, accessibility was labeled as follows:

Score	Level of Accessibility
8-10	Good
5-7	Average
<5	Poor

**Ethics:** Ethical clearance was obtained from the Institutional Ethics Committee (IEC) of NIPSOM followed by permission was taken from the UH&FPO for data collection. Informed written consent was taken from the each participant informing purpose, procedure, risk and benefits of the study. Privacy of the participants and confidentiality of data were maintained strictly.

**RESULTS**

Females were predominant (51.33%), mean age of the participants was 35.73 (± 11.7) years, around one third (31.3%) had primary education, average monthly family income was Tk. 13920.00 (±10290.75) and most (84.0%) were from joint family [Table 1].

By sex of the participants, 41.1% of the males and 53.2% females had poor accessibility to health care services of the UHC. On the contrary, 25.6% of the males and 27.3% females had average accessibility to UHC services. The study also revealed that 23.3% males and 19.5% females had good accessibility to UHC services. This difference of accessibility by sex was found statistically significant ( p<0.05) [Table 2].

**Table 1: Baseline characteristics of the participants (n=300)**

Attributes	Findings
Gender	Male: 48.7%; Female: 51.3%
Age (Years)	20-29: 35.3%; 30-39: 23.3%; 30-49: 22.7; 50-60: 18.7%. Mean age: 35.73 (± 11.7)
Marital status	Married: 77.3%; Unmarried: 16.0%; Widow/Widower: 6.7%.
Education	Illiterate: 28.7%; Primary: 31.3%; Secondary: 7.3%; Higher secondary: 20.7%; Graduate: 7.3%; Masters: 4.7%.
Occupation	Students: 13.3%; Housewife: 33.3%; Farmer: 6.8%; Business: 11.3%; Service holder: 21.3%; Day laborer: 5(2.0%); Retired: 4(1.6%).
Monthly family income	Tk. 5000-10,000: 53.3%, Tk.10001-20000: 31.3%, Tk. 20001-30000: 8.7%, Tk. 30001-50,000: 6.7%, Average monthly family income: Tk. 13920.00 (±10290.75)
Type of family	Joint: 84.0%; Nuclear: 16.0%

**Table 2. Association between level of accessibility and sex of the participants**

Sex	Level of accessibility			Total f (%)
	Good f (%)	Average f (%)	Poor f (%)	
Male	34 (23.3)	52 (25.6)	60 (41.1)	146 (100.0)
Female	30 (19.5)	42 (27.3)	82 (53.2)	154 (100.0)
Total	64 (21.3)	74 (31.3)	142 (47.3)	300 (100.0)
Significance	$\chi^2_{(2)} = 12.453, p = 0.042$			

In respect of age of the participants and accessibility to UHC services, majority (45.3%) of the 20-29 years, 60.0% of 30-39 years, 35.3% of 40-49 years and 50.0% of 50-60 age group had poor accessibility to UHC services. On the other hand, 22.6% of the 20-29 years, 20.0% of 30-39 years, 44.1% of 40-49 years and 46.4% of 50-60 years age group had average

accessibility to health care services. It was found 32.1% of the 20-29 years, 20.0% of 30-39 years, 20.6% of 40-49 years and 3.6% of 50-60 years age group had good accessibility to UHC services. This difference of accessibility by age was found statistically significant ( $\chi^2$  Test, p<0.01) [Table 3].

**Table 3. Association between level of accessibility and age of the participants**

Age group (Years)	Level of accessibility			Total f (%)
	Good f (%)	Average f (%)	Poor f (%)	
20-29	34 (32.1)	24 (22.6)	48 (45.3)	106 (100.0)
30-39	24 (20.0)	14 (20.0)	42 (60.0)	70 (100.0)
40-49	14 (20.6)	30 (44.1)	24 (35.3)	68 (100.0)
50-60	02 (3.6)	26 (46.4)	28 (50.0)	56 (100.0)
Significance	$\chi^2_{(6)} = 15.88, p = 0.012$			

By education and level of accessibility, majority (58.1%) of the illiterate, 46.8% with primary education and 54.5% with secondary education had poor accessibility to UHC services. Majority (42.9%) of the masters and 36.4% graduates had good accessibility while 45.5% graduates had average accessibility to UHC services. This difference of accessibility by education was found statistically significant ( $p < 0.05$ ) [Table 4].

In respect of association between occupation of participants and level of accessibility, majority

(66.7%) of the farmers, housewives (56.0%), students (55.0%), businessmen (52.9%) and day laborer (45.5%) had poor accessibility to UHC services. On the contrary, majority (53.1%) of the service holders had average accessibility while 30.0% students, 27.3% day laborers and 25.0% service holders had good accessibility to UHC services. This difference of accessibility by occupation was statistically significant ( $p < 0.05$ ) [Table 5].

**Table 4. Association between level of accessibility and education of the participants**

Education	Level of accessibility			Total f (%)
	Good f (%)	Average f (%)	Poor f (%)	
Illiterate	16(18.6)	20 (23.3)	50 (58.1)	86 (100.0)
Primary	16 (17.0)	34 (36.2)	44 (46.8)	94 (100.0)
Secondary	04 (18.2)	06 (27.3)	12 (54.5)	22 (100.0)
Higher secondary	14 (22.6)	18 (29.0)	30 (48.4)	62 (100.0)
Graduate	08 (36.4)	10 (45.5)	04 (18.2)	22 (100.0)
Masters	06 (42.9)	06 (42.9)	02 (14.3)	14 (100.0)
Significance	$\chi^2_{(10)} = 10.45, p = 0.032$			

**Table 5. Association between level of accessibility and occupation of the participants**

Occupation	Level of accessibility			Total f (%)
	Good f (%)	Average f (%)	Poor f (%)	
Student	12 (30.0)	06 (15.0)	22 (55.0)	40 (100.0)
Housewife	18 (18.0)	26 (26.0)	56 (56.0)	100 (100.0)
Service holder	16 (25.0)	34 (53.1)	14 (21.9)	64 (100.0)
Day laborer	12 (27.3)	12 (27.3)	20 (45.5)	44 (100.0)
Business	04 (11.8)	12 (35.3)	18 (52.9)	34 (100.0)
Farmer	02 (11.1)	04 (22.2)	12 (66.7)	18 (100.0)
Significance	$\chi^2_{(10)} = 16.41, p = 0.050$			

By monthly family income and its association with level of accessibility, majority (48.8%) with monthly family income of Tk.5000-10000, 42.6% of Tk. 10001-20000 and 53.8% of Tk.20001-30000 had poor accessibility to UHC services. On the other hand, majority (60.0%) of Tk.30001-50000 income

group had good accessibility and 30.0% of the same income group had average accessibility to UHC services. This difference of accessibility by monthly family income was statistically significant ( $p < 0.05$ ), [Table 6].

**Table 6. Association between level of accessibility and monthly family income**

Monthly income (Tk.)	Level of accessibility			Total f (%)
	Good f (%)	Average f (%)	Poor f (%)	
5000-10000	36 (22.5)	46 (28.8)	78 (48.8)	160 (100.0)
10001-20000	20 (21.3)	34 (36.2)	40 (42.6)	94 (100.0)
20001-30000	04 (15.4)	08 (30.8)	14 (53.8)	26 (100.0)
30001-50000	12 (60.0)	06 (30.0)	02 (10.0)	20 (100.0)
Significance	$\chi^2_{(10)} = 11.88, p = 0.045$			

Regarding problems associated with accessibility to UHC services, 67.0% participants addressed ‘long waiting time’ followed by ‘insufficient drug supply’ (62.0%), ‘limited laboratory facility’ (40.0%), inadequate staff (37.9%) and non-cooperation of the staff (32.0%). Moreover, 21.3% identified ‘referral to another hospital’, 18.4% ‘poor communication’ and 15.3% ‘limited treatment facility’ [Table 7].

To ensure accessibility to health care services of UHC, majority (60.0%) of the participants suggested measures for reduction of waiting time followed by sufficient drug supply (44.4%), strengthening emergency services (44.4%), well behavior of staff (33.1%), improving in-door facility (32.0%), adequate health manpower (30.0%). Off all, 18.8% suggested for improvement of communication system and 17.2% suggested for adequate laboratory facility [Table 8].

**Table 7. Distribution of the problems associated with accessibility to UHC services**

Problems	Frequency	Percentage
Limited in-patient service	32	10.7
Limited treatment facility	46	15.3
Limited laboratory facility	90	40.0
Inadequate service providers	114	37.9
Insufficient drug supply	186	62.0
Referred to another hospital	64	21.3
Poor communication	56	18.4
Non-cooperation of the staff	66	32.0
Long waiting time	200	66.7

\*Multiple Responses

**Table 8. Distribution of the suggestions by participants to improve accessibility to UHC services**

Suggestion	Frequency	Percentage
Improve communication system	58	18.8
Improving cooperation of the staff	100	33.1
Ensure adequate service provider	90	30.0
Reduce waiting time'	180	60.0
Ensure sufficient drug supply	134	44.4
Ensure adequate laboratory facility	53	17.2
Improving indoor facility	66	32.0
Strengthening emergency services	134	44.4

\*Multiple Responses

## DISCUSSION

The cross-sectional study was conducted among rural adults to assess the accessibility to the health care services of the UHC. Though relevant research is very scarce in Bangladesh, some studies since the 1990s have touched upon the quality of health services and accessibility to health services of primary level health facilities like UHC. This study revealed findings related to the socio-demographic characteristics of the participants, level of accessibility to the services of UHC along with associated problems or factors and suggestions for improvement. These findings were compared with different subgroups of participants within the study and with the findings of other relevant studies.

The study revealed that out of all the participants, 53.2% female and 41.1% male participant had poor accessibility to UHC health care service. On the other hand, 25.6% of the males and 27.3% females had average accessibility to health care services of UHC. The study also revealed that 23.3% males and 19.5% females had good accessibility health services of UHC. This difference of accessibility by sex was found statistically significant ( $p < 0.05$ ). A Study conducted by Islam MZ showed, out of the 305 respondents, 55.40% are male and 44.60% are female receiving health service from UHC.<sup>3</sup> It seems that, males are getting good access to health services than their counterpart females whatever. This finding is close to the finding of census 2011 conducted by the Bangladesh Bureau of Statistics (BBS), where males are slightly higher in proportion to get better access to health facilities in comparison to their counterpart females and it is also the national scenario of the country.<sup>4</sup>

In respect of age of the participants and accessibility to UHC health care service, majority 45.3% of the 20-29 years age group including 60.0% of 30-39 years age groups, 35.3% of 40-49 years age group and 50.0% of 50-60 age group had poor accessibility to health care services of the UHC. On the other side, 22.6% of the 20-29 years age group including 20.0% of 30-39 years age groups, 44.1% of 40-49 years age group and 46.4% of 50-60 age group had average accessibility to health care services. Regarding good accessibility to health care service, 32.1% of the 20-29 years age group including 20.0% of 30-39 years age groups, 20.6% of 40-49 years age group and 3.6% of 50-60 age group had good accessibility to health care service. This difference of accessibility by age was found statistically significant ( $p < 0.01$ ). Another study was conducted by young, JT regarding receiving health care at rural Bangladesh, showed among 4 different age group where middle age group

people are more concern about health.<sup>5</sup> This finding of the study can be explained by the facts that the middle aged people are the productive and income generating group in the rural community and they were more concerned about their illness and health care utilization for cure, that's why they were in large proportion in comparison to the other age groups. Moreover, middle age group are more conscious about their health for a better health in future.<sup>6</sup>

Majority (58.1%) of the illiterate, 46.8% with primary education and 54.5% with secondary education had poor accessibility to health care services of the UHC. On the other side, majority of the masters 42.9% and 36.4% graduates had good accessibility while 45.5% graduates had "average" accessibility to services of UHC. This difference of accessibility by education was found statistically significant ( $p < 0.05$ ). In this regard, findings related to educational qualification differed as the SVRS of BBS found adult literacy rate 58.8%. This difference may be explained by the logic that this specific study was conducted in selected rural community while the SVRS carried out the survey countrywide.<sup>7</sup> Similar findings were revealed by the study conducted by Sohail, M where the study revealed that less educated rural people had poor accessibility to health care services of UHC while educated people had good accessibility.<sup>8</sup>

In respect of occupation of participants, majority (66.7%) of the male participants who were farmers, majority of the females (56.0%) who were housewives, 55.0% were students, 52.9% were businessmen and day laborer 45.5% had poor accessibility to UHC services. On the other hand, majority (53.1%) of the service holders had average accessibility while 30.0% of students, 27.3% day laborers and 25.0% service holders had good accessibility to services of UHC. This difference of accessibility by occupation was statistically significant ( $p < 0.05$ ). In this regard, the findings of Bangladesh Bureau of Health Education found that 36.1% people with occupation; agriculture, forestry, fisheries and 63.9% with non-agricultural occupations were prevailing in the country and their accessibility to health facilities was not satisfactory.<sup>9</sup> These findings can be explained by the facts that farmers, day laborers and housewives have to work hard for their livelihood in the rural areas of the country. Housewives have to perform household activities as a traditional system of rural Bangladesh while the farmers have to work had in the field; day laborers have to struggle for their daily income generating activities. Due to all these occupational activities, these groups of rural people had poor

accessibility to the UHC services though their health care needs remain unaddressed and unmet.

By monthly family income and its association with accessibility to UHC service, majority (48.8%) with Tk.5000-10000 income group while 42.6% of Tk. 10001-20000 and 53.8% of Tk.20001-30000 income groups had poor accessibility UHC services. On the other side, majority (60.0%) with Tk.30001-50000 income group had good accessibility and 30.0% of the same income group had average accessibility to services of UHC. This difference of accessibility by monthly family income was statistically significant ( $p < 0.05$ ). The Household Income and Expenditure Survey (HIES) of Bangladesh found that average monthly household income of rural people Tk.9,648.00 and had poor access to health facilities, which different to the present study finding. This variation may be explained by the fact that this specific study was conducted in a selected rural community while the HIES was carried out the survey countrywide.<sup>10</sup>

Similar findings were revealed by the study conducted by Islam MZ where economically poor rural people with lower monthly income had poor access to health care services of primary level public health facilities like UHC while higher income group of rural people had comparatively good accessibility to the health care services of the health facilities.<sup>3</sup> These findings can be justified by the facts that lower income groups suffer from financial constraints and keep them busy with different income generating activities and that's why they couldn't get access to UHC services.<sup>11</sup>

Regarding problems associated with accessibility to UHC services, majority (67.0%) of the participants addressed long waiting time followed by insufficient drug supply (62.0%), limited laboratory facility (40.0%), inadequate service providers (37.9%), and non-cooperation of the health staff (32.0%). From rest of the participants, 21.3% mentioned referred to another hospital, 18.4% for poor communication and 15.3% mentioned limited treatment facility. A similar study was conducted by Sohail, M which was macro-level quantitative study looked at the process and structure aspects of quality of PHC and suggests that the majority of the users of government PHC services were dissatisfied with the existing level of quality of care. In particular, people were most dissatisfied with waiting time, cleanliness, and privacy of treatment and the standard of inpatient food.<sup>8</sup> This finding was also very close to the finding of the study conducted by Islam MZ where average waiting time was around 30 minutes.<sup>3</sup>

In this respect it can be said that, reducing/removal of barrier are inevitable for diagnosis of diseases and specific treatment but the finding is really not accessible and up to the mark. To ensure good accessibility at the UHC, these constraints must be considered by the health policy makers and health care managers and accordingly effective measures should be taken.<sup>12</sup>

Regarding accessibility to UHC services, majority (60.0%) of the participants suggested for interventions for reduction of waiting time followed by 44.4% for sufficient drug supply, 44.4% for strengthening emergency services. On the contrary, participants suggested 'well cooperation of hospital staff' (33.1%), 'improving in-door facility' (32.0%), and 'adequate service providers' (30.0%). Around 19% participants advised for improvement of communication system and 17.2% suggested for adequate laboratory facility. A study was conducted by Hasan, MK in respect of quality of health and patients' expectation showed that, unavailability of health professionals, shortage of health staff, lack of resources and cleanliness of the UHC, lack of adequate infrastructures at the UHC, lack of adequate diagnostic facilities, power supply and drug supply as the major factors related accessibility to health care.<sup>13</sup>

All these factors are still prevailing as major barriers to UHC services throughout the country. The active involvement of local government and communities in UHC management can improve service delivery systems. It is very important to improve accessibility to the health care service at UHC, which is the first referral hospital in primary level of health care delivery system of the country. Specific measures and program interventions should be devised to overcome the problems associated with accessibility. Exchange of supervisory and monitoring reports, with necessary steps should be taken to improve service delivery based on the shared information<sup>14</sup>. For this, coordination and cooperation between central and local health managers must be improved for well functioning and accessibility of rural people to UHC.

## CONCLUSION

To establish accessibility to the health care services of UHC, effective measures are essential to reduce waiting time, and to ensure adequate manpower, drug supply and laboratory facilities and to strengthen emergency services. Cooperation and communication of UHCs with the rural communities should be improved. Policy makers and health care managers must take initiatives to find out and overcome the underlying problems and to ensure accessibility to UHC services in rural Bangladesh.

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