

An Empirical Study on Patients' Satisfaction with Healthcare Services of Community Clinics in Rural Bangladesh: Based on Exploratory Factor Analysis

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ABSTRACT

Analyzing patient satisfaction is crucial for assessing the performance and accessibility of health services in light of the rising demand for healthcare. The opinions of patients are becoming more and more weighted in the formulation of policies. The healthcare management in developing countries appears to have mainly disregarded patients' opinions of their countries' healthcare systems. Therefore, this study is patient-centered and aims to examine the factors influencing patients' satisfaction with healthcare services provided by community clinics in rural Kapasia, Bangladesh. A cross-sectional survey was conducted with 434 samples. Exploratory factor analysis was used to find the potential factors that might influence patient satisfaction. The results suggest that health staff explanation about medicine and dosages received the highest rating from respondents ($3.86 \pm .39$) while the availability of drinking water received the lowest rating 1.93 ± 0.68 . The study has revealed that the 3 factors that affect the satisfaction of patients are health staff service attitude and basic amenities in the waiting area. To increase patient satisfaction, health administrators should prioritize the three aforementioned factors and put the right plans into action. The strategic steps required to address the demands of patients in the government healthcare sector are also discussed in the study's conclusion.

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INTRODUCTION

Patient satisfaction is acknowledged as a crucial factor in determining the standard of patient care services provided by healthcare organizations. Patients' expectations, values, and experiences are reflected in the multidimensional construct known as patient satisfaction (Kersnik, 2000; Sitzia & Wood, 1997; Yıldız & Erdoğan, 2004). Effective health-related factors are currently the subject of extensive research. The best indicators of the effectiveness of healthcare systems have been suggested as patients' satisfaction with their healthcare (Direkvand-Moghadam et al., 2014).

The most significant and fundamental concern for a nation's citizens is their health to preserve them as human resources and further the nation's overall growth. The government of Bangladesh relaunched the community clinic (CC) project to give rural communities free services. As a result, since 2009, 14,000 CCs have been established nationwide, one for every 10,000 people, bringing healthcare rights to their doorstep (Karim et al., 2016a). Even in isolated locations, people can now access health, family planning, and nutrition services under one roof. However, Bangladesh's healthcare system struggles with a lack of resources, poorly trained staff and technology, corruption, and a poor management structure. Therefore, this circumstance is unexpected in a country with a high population density like Bangladesh (A. Seddiky & Ara, 2013).

Satisfaction measures how well service expectations have been met, whereas patient ratings of service quality are recorded as part of the perception of quality. The idea of quality of care has been thoughtfully considered as a social phenomenon that varies across policymakers, experts, managers, social workers, and common users. Since patients' perceptions of service quality can improve the responsiveness of service to patients' expectations and increase their utilization, several ways were tried for a valid assessment of quality (Karim et al., 2016). In developing countries like Bangladesh, few studies have asked patients about their experiences with services, and there has been little effort to involve them in establishing health service standards or measuring satisfaction (Andaleeb et al., 2007).

The current research is based on patients' evaluations of the functional service quality provided by healthcare organizations. The main goal of the research was to pinpoint the factors that influence patients' satisfaction with the service of CCs and to determine whether or not these factors statistically varied from patient demographics. Understanding these linkages may assist policy and decision-makers in focusing on better healthcare services in CC for specific population segments. In order to improve healthcare services for specific demographic segments, policymakers and decision-makers may find it useful to understand these linkages.

The purpose of this research was to assess the degree of patient satisfaction at the CCs of the Kapasia upazila, Bangladesh and in addition, to investigate the associations between several aspects of patient satisfaction and socio-demographic factors (gender, age, marital status, occupation, education, and monthly income).

METHODS

Study Design and Population

To achieve the objectives, a cross-sectional quantitative survey was carried out from February to April 2019. All of the patients who received healthcare services from CCs in eleven unions of Kapasia upazila made up the population.

Sample Size and Data Collection

In the first stage of the sampling, three CCs were selected at random from each of the unions. After that, the simple random sample technique was used to choose the patients from these CCs. A trained research assistant collected the data. A brief explanation of the study's purpose was given to patients when they were personally approached. Respondents eligible for responding to the questionnaires were adults between 18 years to above 65 years old. According to Taro Yamane's (Yamane, 1973) formula, $n = \frac{N}{1 + Ne^2}$; n = required sample size, N = number of people in the population, e = sampling error, the sample size of this study is 400. Finally, a total of 434 surveys were ultimately completed. All participant's identities were kept confidential.

Questionnaire Design

The questionnaire was created using information from prior studies and patients' experiences. Two sequential sections made up the questionnaire. Part 1 items were socio-demographic survey questions; and in Part 2 measurement scale was created within the context of this study comprised of 20 questions, of which 7 specifically connected to patient satisfaction, 5 directly related to the knowledge and expertise of the health professionals, and the remaining 8 directly related to the environment and basic facilities of the CC (atmosphere, medicine, cleanliness, water, toilet, etc.). A preliminary questionnaire was created using a Likert scale in English, translated into Bengali, and then retranslated several times until it was clear and contained the needed constructs. Each item was scored using a 5-point Likert-type scale with fixed response options, ranging from very satisfied (very satisfied) (5) to very dissatisfied (very dissatisfied) (1). It has been suggested that surveys on health care use this structure (Andaleeb, 2001; Millar, 2001). To make sure that the format, wording, and sequencing of the questions were adequate, the questionnaire was pretested. About 25 patients were attained in this pretest. Several factors of patient satisfaction— service attitude of health staff, basic amenities, accessibility, availability, and overall—were operationalized using the item scores. Each of these elements was found to be related to patient satisfaction in earlier studies (Ahmad et al., 2011; Aldana et al., 2001; Andaleeb, 2001; Karim et al., 2016; Riaz et al., 2020; Seddiky, 2020).

Statistical Analysis

For the construction and testing of theories, construct validity is a prerequisite, particularly when using recently formed conceptions (Yıldız & Erdoğan, 2004). Construct validity has traditionally been evaluated using methods like item-total correlation, factor analysis, and Cronbach's alpha (Lemmink et al., 1998). The participants' demographic information and other background variables were calculated using descriptive data. To determine the dimensionality of overall satisfaction, check the structural validity, and minimize the number of variables, Exploratory Factor Analysis (EFA) was carried out using principal component analysis and varimax rotation. SPSS version 27.0 was used for all data analysis.

RESULTS

Descriptive findings

In Table 1, the demographic and other background characteristics of the participants are presented. Participants ranged in age from 19 to 66 years (mean 38.26 ± 11.12), with 83.9% female and 16.1% male. Half of the respondents (50.5%) belonged to age group 25–40 years. Only 48% of interviewees had completed at least higher secondary education. Most of the participants (66.1%) were housewives, and 63.1% participants were from monthly BDT 5001-10000 income groups.

Item Score of Patients' Satisfaction

Table 2 provides a detailed summary of the survey regarding the patients' satisfaction. The health staff explanation about medications and dosages received the highest mean scores from respondents (3.87 ± 0.39), while patients' recommendations of CC to friends and family came in second (3.31 ± 0.89). Availability of drinking water received the lowest mean score of 1.93 ± 0.68 .

Factor Analysis

In rural Kapasia, EFA was carried out to investigate the dimensionality of total patients' satisfaction and to assess the reliability of the dimensional structure. Statements with factor loadings greater than value 0.30 were considered. According to the distributions of the factor loading coefficients, it was possible to meaningfully restructure the 16 items used to measure patient satisfaction into four factors, all with eigenvalues > 1.0 (Kaiser, 1960), accounting for 61.58% of the total variance and scree plot (Table 3 and Figure 1). Kaiser-Meyer-Olkin's (KMO) measure was 0.73 for the dataset. To assess the suitability of utilizing factor analysis, the KMO measure of sample adequacy was first computed. It helps in determining whether the data are.

Table 1. Participants' characteristics and descriptive findings

Respondents' Characteristic	N	(%)
Gender		
Male	70	16.1
Female	364	83.9
Age		
18-24 years	52	12.0
25-40 years	219	50.5
41-60 years	153	35.3
60 years above	10	2.3
Marital Status		
Single	6	1.4
Married	403	92.9
Divorced/ Separated	7	1.6
Widow/Widower	18	4.1
Education		
No Education	30	6.9
Primary	194	44.7
Secondary	161	37.1
Higher Secondary	49	11.3
Occupation		
Cultivation	46	10.6
Day labor	47	10.8
Service	20	4.6
Business	20	4.6
Student	12	2.8
Housewife	287	66.1
Monthly family Income		
Up to BDT 5000	48	11.1
BDT 5001-10000	274	63.1
BDT 10001-20000	103	23.7
BDT 20000+	9	2.1

Source: Field survey

Appropriate for factor analysis. Due to a multicollinearity issue, KMO is utilized to determine which variables should be removed from the model. KMO ranges from 0 to 1, and factor analysis should be performed when KMO is ≥ 0.60 . It was, therefore, appropriate for factor analysis. The Bartlett's test result was 4623.872 ($P < 0.001$) that implied there.

Factor 1 "Service attitude of health staff" was the second highest scoring factor ($M = 3.23$), consisting of three items measuring the friendliness and caring attitude of health staff, health staff listening to problems carefully, and explanation of medicines and dosages properly by health staff. Factor 3 "Accessibility" with the highest score ($M = 3.52$), as indicated by three items of the questionnaire, including the convenience to travel to CC, distance to CC from residence, and availability of health staff. The two lowest scoring factors were Factor 4 "Overall opinion" ($M = 2.84$) consisted of five items including expectations met by the CC's services, cure with the treatment, happiness with the CC's services, recommendation use of the services to others and overall satisfaction; and Factor 2 "Environment and basic amenities" ($M = 2.34$) represented by five items including availability of medicine, cleanliness of surroundings, spacious waiting area, availability of drinking water and toilet facility for patients.

Table 2. Patients' satisfaction item scores

	Contents	Very dissatisfied N (%)	Dissatisfied N (%)	Neither satisfied nor dissatisfied N (%)	Satisfied N (%)	Very satisfied N (%)	Mean \pm SD
X ₁	Health staff attitude	5 (1.2)	212 (48.8)	14 (3.2)	198 (45.6)	5 (1.2)	2.97 \pm 1.02
X ₂	Health staff listen carefully to patient	-	227 (52.3)	38 (8.8)	167 (38.5)	2 (0.5)	2.87 \pm 0.95
X ₃	Health staff explanation about medicine and dosages	-	6 (1.4)	49 (11.3)	377 (86.9)	2 (0.5)	3.86 \pm 0.39
X ₄	Availability of medicine	13 (3.0)	309 (71.2)	38 (8.8)	74 (17.1)	-	2.40 \pm 0.80
X ₅	Cleanliness of surroundings	-	26 (6.0)	229 (52.8)	179 (41.2)	-	3.35 \pm 0.59
X ₆	Spacious waiting area	4 (0.9)	362 (83.4)	55 (12.7)	13 (3.0)	-	2.18 \pm 0.47
X ₇	Availability of drinking water	279 (64.3)	100 (23.0)	40 (9.2)	15 (3.5)	-	1.93 \pm 0.68
X ₈	Availability of toilet for patient	333 (76.7)	18 (4.1)	39 (9.0)	44 (10.1)	-	2.25 \pm 0.69
X ₉	Convenient to travel to CC	31 (7.1)	66 (15.2)	25 (5.8)	190 (43.8)	122 (28.1)	3.71 \pm 1.22
X ₁₀	Distance to CC from residence	19 (4.4)	98 (22.0)	19 (4.4)	272 (62.7)	26 (6.0)	3.43 \pm 1.04
X ₁₁	Working hours of health staff	21 (4.8)	97 (22.4)	19 (4.4)	271 (62.4)	26 (6.0)	3.42 \pm 1.05
X ₁₂	Expectations met by the CC's services	9 (2.1)	361 (83.2)	50 (11.5)	14 (3.2)	-	2.16 \pm 0.49
X ₁₃	Cure with the treatment	1 (0.2)	61 (14.1)	77 (17.7)	295 (68.0)	-	3.53 \pm 0.74
X ₁₄	Happiness with the healthcare service	28 (6.5)	168 (38.7)	95 (21.9)	139 (32.0)	4 (0.9)	2.82 \pm 0.98
X ₁₅	Recommendation to others	7 (1.6)	104 (24.0)	72 (16.6)	251 (57.8)	-	3.31 \pm 0.89
X ₁₆	Overall satisfaction on healthcare	2 (0.5)	157 (36.2)	209 (48.2)	66 (15.2)	-	2.78 \pm 0.70

Source: Author's calculation

Table 3. Factor eigenvalues and variance percentage

Components	Initial eigenvalue			Rotation sums of square loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	3.434	21.462	21.462	3.382	21.141	21.141
2	2.713	16.954	38.416	2.652	16.577	37.717

3	2.294	14.337	52.753	2.317	14.483	52.200
4	1.412	8.823	61.576	1.500	9.376	61.576
5	0.979	6.119	67.696			
6	0.911	5.696	73.391			
7	0.831	5.195	78.586			
8	0.765	4.782	83.368			
9	0.672	4.202	87.570			
10	0.562	3.512	91.082			
11	0.521	3.257	94.339			
12	0.457	2.853	97.192			
13	0.263	1.643	98.835			
14	0.109	0.680	99.515			
15	0.072	0.447	99.962			
16	0.006	0.38	100.00			

Source: Author's calculation

The Cronbach's alpha coefficient was used to measure the reliability of each question addressing the patient's satisfaction for each factor. For factors 1, 2 and 3 reliabilities were 0.822, 0.736 and 0.709, respectively, which were regarded as being in a very good range. Statements with factor loadings higher than 0.30 were taken into consideration.

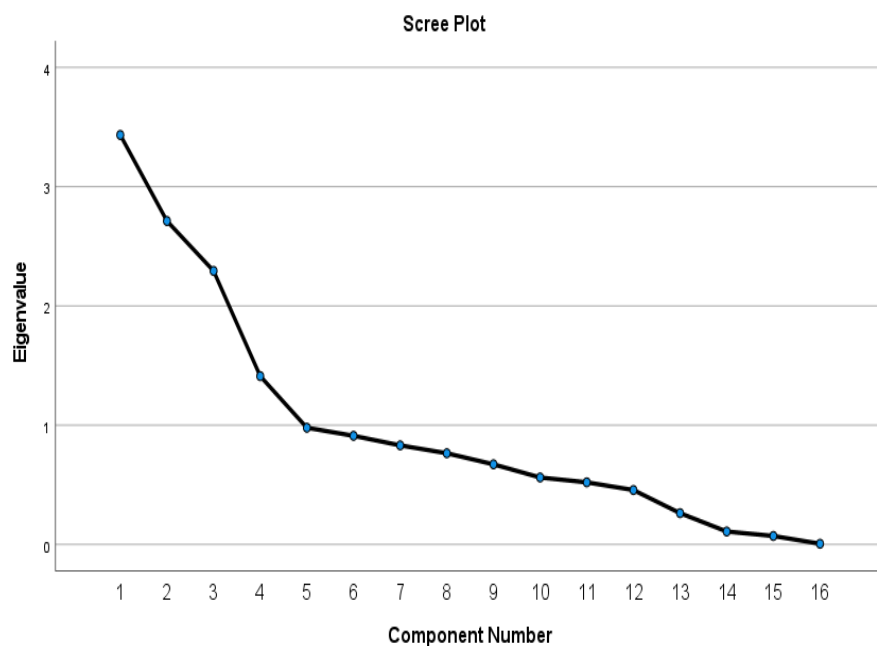


Figure 1. Scree plot of eigenvalues

Table 4. Factor Analysis with Varimax Rotation Rotated Component Matrix

Item	Component			
	1	2	3	4
Friendliness and caring attitude of health staff	0.868			
Health staff listen to problems carefully	0.865			
Explanation of medicines and Dosages properly by health staff	0.332			
Availability of drinking water		0.908		
Cleanliness of surroundings		0.907		
Toilet facility for patients		0.757		
Spacious waiting area		0.613		
Availability of medicine		0.446		
Working hours of clinic (open and close)			0.966	
Distance to travel to come to CC			0.965	
Convenient to travel to CC			0.664	
Happiness with the CC's services				0.846
Overall satisfaction				0.823

Cure with treatment				0.816
Recommend use of the services to others				0.801
Expectations met by the CC's services				0.456
Cronbach's alpha	0.736	0.709	0.82	0.487
Number of Items	3	5	3	5
Item means	3.23	2.3	3.52	2.84

Source: Author's calculation

Based on the results provided in Table 4, we can identify the first factor, which is named "service attitude of health staff," consisting of 3 items and accounts for 21.141% of the variation in the data. "Environment and basic amenities" is the second recognized factor that incorporates the five items and accounts for 16.577% of the total variation in the data. The third factor is interpreted as "accessibility" which consists of three variables, accounting for 14.483% of the variance in the data. The last factor "Overall opinion" consists of five items that account for 9.376% of the variance in the data as a whole.

Relationships between Patient Satisfaction and Socio-Demographic Factors

Table 5 illustrates the participants' overall satisfaction patterns on CC by their characteristics. Where applicable, satisfaction levels were collapsed to show a single category of "Satisfied". A similar procedure was followed for the levels of dissatisfaction to show a single category of "Dissatisfaction". The overall dissatisfaction of males and females was (65.7%) and (53.3%) respectively while 41.2% of females were found with satisfied with the health service of CCs.

According to age, (60.6%) respondents of 45-64 years old were found dissatisfied whereas 66.7% of 65 or above years of respondents were satisfied with the service of CCs. For marital status, hundred percent of singles and 71.4% divorced/separated respondents were dissatisfied though 61.1% of widows/widowers were satisfied with the services.

Table 5. Patient Satisfaction and Socio-Demographic Factors

Respondents' Characteristics	Patient Satisfaction			Chi square	p-value
	Satisfied 164 (37.8)	Neutral 30 (6.9)	Dissatisfied 240 (55.3)		
Gender				15.190	.001
Male	14 (20.0)	10 (14.3)	46 (65.7)		
Female	150 (41.2)	20 (5.5)	194 (53.3)		
Age				11.020	.088
18-24 years	19 (35.8)	3 (5.7)	31 (58.5)		
25-44 years	102 (42.0)	13 (5.3)	128 (52.7)		
45-64 years	39 (29.5)	13 (9.8)	80 (60.6)		
65 years+	4 (66.7)	1 (16.7)	1 (16.7)		
Marital Status				10.088	.121
Single	0 (0.0)	0 (0.0)	6 (100.0)		
Married	151(37.5)	29 (7.2)	223 (55.3)		
Divorced/ Separated	2 (28.6)	0 (0.0)	5 (71.4)		
Widow/Widower	11 (61.1)	1 (5.6)	6 (33.3)		
Education				67.137	.000
No Education	16 (53.3)	4 (13.3)	10 (33.3)		
Primary	106 (54.6)	11 (5.7)	77 (39.7)		
Secondary	40 (24.8)	12 (7.5)	109 (67.7)		
Higher Secondary	2 (4.3)	3 (6.5)	41 (89.1)		
Above higher Secondary	0 (0.0)	0 (0.0)	3 (100.0)		
Occupation				63.442	.000
Cultivation	10 (21.7)	8 (17.4)	28 (60.9)		
Day Labor	35 (74.5)	5 (10.6)	7 (14.9)		
Service	1 (5.0)	1 (5.0)	18 (90.0)		
Business	4 (20.0)	2 (10.0)	14 (70.0)		
Student	1 (8.3)	0 (0.0)	11 (91.7)		
House Wife	112 (39.0)	14 (4.9)	161 (56.1)		
Monthly Family Income				67.564	.000
Up to BDT 5000	35 (74.5)	2 (4.3)	10 (21.3)		
BDT 5001-10000	113 (42.0)	24 (8.9)	132 (49.1)		

BDT 10001-20000	14 (13.7)	4 (3.9)	85 (82.5)
BDT 20000+	0 (0.0)	0 (0.0)	6 (100.0)

Regarding the relationship between education and satisfaction, there are differences among the subgroups. Like singles, 100% above higher secondary educated respondents were dissatisfied and 89.1% higher secondary respondents were dissatisfied with the CCs. Respondents with primary education (54.6%) and no education (53.3%) were found in satisfied with the service of CCs respectively.

Again, dissatisfaction was found among the 91.7%, 90%, and 70% respondents of students, service holders and businesses respectively. However, 74.5% of day laborers were satisfied with the health services. On the income level, the data showed differences in satisfaction among the different income categories. Satisfaction with the service of CC was found in 74.5% of respondents, whose income is less than tk 5000. In contrast, 82.5% and 100% of respondents with an income of tk 10001-tk 20000 and more than tk 20000 respectively were dissatisfied. consisted of five items including expectation met by the CC's services, cure with the treatment, happiness with the CC's services, recommended use of the services to others and overall satisfaction; and Factor 2 "Environment and basic amenities" ($M = 2.34$) represented by five items including availability of medicine, cleanliness of surroundings, spacious waiting area, availability of drinking water and toilet facility for patients.

DISCUSSION

Patients' satisfaction with the healthcare system has received a lot of attention in recent years due to the rapid changes in the social environment and the way that healthcare is delivered. It is believed that satisfaction with the providers' approach toward these services will have an impact on patients' decision to receive service from the facility. Patient satisfaction is thus a multifaceted idea and a subjective phenomenon that is connected to perceived needs, expectations, and experiences with care (Gurung, 2003).

A model created in this study that is related to patient satisfaction offers an understanding to researchers looking at how to raise patient satisfaction with the quality of CC services in Bangladesh. Results from the EFA revealed a four-dimension structure for total patient satisfaction, "Service attitude of health staff", "Environment and basic amenities", "Accessibility", and "Overall opinion" with three items each, and they showed satisfactory reliability and validity.

In Table 4, EFA is expressed over the mean scores on the composite factors. These ratings show definite patient satisfaction when people look up to and depend on CCs for their health. Among the four factors, the accessibility factor received mean scores of 3.52 on all scales. These ratings are just slightly higher than the mid-point (according to Yildiz and Erdogmus (2004), a score below 3 would be considered to have a negative prevalence). The results show that the participants were favorable only regarding the factor "accessibility" but less so regarding the other factors.

According to age groups, the majority of respondents (66.7%) with 65 years and above were more satisfied than other subgroups. This finding is similar to several studies (Akbar et al., 2017; Alahmadi, 2004) where an increase in patient age shows a positive relationship with the level of satisfaction. In the present study, this may be because older patients are getting priorities from the health service provider. Even though there were differences in the satisfaction rate of the different age groups, the difference was not statistically significant ($p=.88$).

Regarding marital status, it was found that the single had a 100% dissatisfaction rate followed by married (55.3%) and divorced/separated (71.4%). While 61.1% of widow/widower people were satisfied with the service of CCs. This could be explained by the fact that these people also get more emphasis from the provider side as they are in a critical position. Those people who were single had no satisfaction at all. This finding could be compared with a study conducted in Saudi Arabia where single respondents were the least satisfied with the PHCs' services (Mohamed et al., 2015). Whereas, the single respondents (66.7%) showed higher satisfaction in Jubail city, Saudi Arabia (Almoajel et al., 2014). However, marital status didn't affect the level of overall satisfaction ($P = 0.095$) in this study.

On the educational level, the present study showed that as a level of education increases than overall satisfaction rate decreases. The respondents who had no education and acquired primary education were satisfied with the provided PHC services by CC than other educational subgroups. Whereas highly educated were dissatisfied with the CCs' services. These results are congruent with the findings of Okeke et al., (2020); Tume et al., (2015); and Almoajel et al., (2014). The difference in satisfaction rate was statistically significant ($P = 0.000$). This could be explained by the fact that the expectations of highly educated people are also high because they are more informed and as a result generally, they are less satisfied. Furthermore, a possible inference that can be drawn from this is that an increase in the level of education creates demands for a better quality of service, more empathy and responsibility from healthcare providers (Islam et al., 2008).

Concerning occupational status, there are differences in the satisfaction rate of the occupational subgroups. All subgroups without day labor had more dissatisfaction with the service of CCs. 74.5% of day

laborers were found in satisfied. Whereas, 91.7% students and 90.0% service holders were found more dissatisfied. $P = 0.000$ indicates that the relationship is statistically significant. This finding may be due to the fact that people with service occupations are more exposed and also have higher expectations. In contrast, Almoajel et al., (2014) found the students showed 100% satisfaction followed by the worker (75%).

The result of the present study also exposed peoples' satisfaction with health services provided by CC with the level of their monthly family income. A remarkable finding was that the satisfaction rate decreased with an increase in monthly income. Of those earning up to tk 5000 monthly income 74.5% of them were more satisfied. Conversely, all respondents (100%) with above tk 20,000 were dissatisfied with the service. This is comparable to the study conducted by Mohamed et al., (2015); Almoajel et al., (2014b). It was found that the least satisfied respondents about PHC services were the higher-income sector. This may be due to the fact that people with high income can easily seek healthcare at the private clinics and specialized hospitals which is not possible for the lower-income group. $P = 0.000$ shows that there is a statistically significant association between income and the level of satisfaction with PHC services at CC.

LIMITATION

This study has some limitations. Firstly, this research included only a single population of patients from 33 CCs in Kapasia. Therefore, the findings of this study cannot be generalized. To ascertain whether the opinions of the study participants are typical of those of all patients in the Bangladeshi population, more investigation is required. Secondly, the majority of patients were found female which might limit generalization to the population. Thirdly, the exploratory factor analysis was used in this research. However, the determination of all outcomes should be made using confirmatory factor analysis, such as a structural equation model, which was not included in this research.

CONCLUSION

Patient satisfaction measurement provides valuable information on system performance, which supports the healthcare institutions' overall quality management. The current research revealed that "Medical staff service attitude," Service attitude of health staff, "Environment and basic amenities", "Accessibility" and Overall opinion were the four factors most strongly linked to patient satisfaction. Patient satisfaction was significantly impacted by their sex, education, occupation, and monthly family income, among other demographic factors, as well as how often they used the health services of CC. Therefore, raising these components' standards will raise the standard of healthcare services of CC that are provided to patients. Community leaders may be essential in raising awareness of and enhancing access to healthcare services provided by CCs. To simplify receiving healthcare services from CC, the government should provide adequate and appropriate logistics, including personnel and equipment.

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