Original Article

PATIENT WAITING TIME IN EMERGENCY DEPARTMENT OF A TERTIARY LEVEL HOSPITAL

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ABSTRACT

***Background*:** Patient waiting time is an important factor of utilizing hospital service, patient satisfaction, quality of management etc. Hence, emergency department (ED) performance can be best assessed by measuring patients' waiting time and affecting factors at this department.

Objective: To determine patient waiting time at ED and associated factors in a tertiary level hospital.

Materials and methods: This cross sectional study was conducted in ED of Chattogram Medical College & Hospital (CMCH), Bangladesh. A total of 175 patients or their attendants at ED were enrolled by convenient sampling technique. Data were collected by face- to- face interview with pretested semi-structured questionnaire and observational checklist. Descriptive statistics was used for analysis by MS Excel and SPSS 21st version windows software.

Result: Around half (47.40%) was male followed by female (32%) and children (20.6%). Mean (± SD) age of the patients was 33.69 ± 21.33 years. More than half (52.6%) were from rural areas followed by urban areas (47.7%). Average monthly family income was Tk. 23891.43(±13033.76). Mean (±SD) waiting time for collecting ticket, consultation with doctor, physical examination, and nursing services were 8.06(±7.98) minutes, 5.46(±6.95) minutes, 2.30(±1.11) minutes and 8(±6.22) minutes respectively. More than two fifth (41.1%) patients had waiting time within 5 minutes. The ratio of doctor/patient, nurse/patient, ticket provider/patient and trolleys & wheel chairs bearer/patient were 1:115, 1:58, 1:115 and 1:40 respectively. Majority of the patients (57.7%) were transferred to In-patient Department (IPD). Statistically significant relationship was found between satisfaction on overall management and overall waiting time of ED ($\chi^2 = 22.47$, df =6, p=0.001).

Conclusion: Majority (48.1%) found satisfied with waiting time at the emergency department.

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Key words: Waiting time, Emergency department, Patients.

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INTRODUCTION

Measuring the waiting time is an essential clue to observe how well an ER is working and performing [1]. Waiting is frustrating, can influence quality of care negatively, and is a frequent cause of patient complaint [2]. Overcrowding threatens patient safety in the ED. ED overcrowding causes waiting in diagnosis and treatment and also diminished quality of care, as a result poor patient outcomes [3]. Unexpected severe illness or injury patients suffer more due to ED overcrowding [4]. Emergency department services should be more responsive to people's hope and need [5].

MATERIALS AND METHODS

This cross sectional study was conducted among 175 patients at emergency department of Chattagram Medical College and Hospital (CMCH). Convenient sampling technique was followed. Data were collected with a pre-tested semi-structured

questionnaire by face to face interview and by a checklist. After collection all data were checked thoroughly. Data analysis was done by SPSS. For inferential statistic, Chi-square test was done.

RESULT

Out of total 175 patients, highest proportion (35.4%) belonged to the age group of 18 to 34 years and lowest proportion (16%) belonged to the age group of 35 to 51 years. Above 51 years and up to 17 years age group was represented by 26.3% and 22.3% patients respectively. The mean (± SD) age of the patients was 33.69 ± 21.33 years. Majority (47.40%) was male, 32% were female and 20.6% were child. Majority (52.6%) came from rural followed by 47.7% from urban areas. Around 27% were in primary education level followed by 20.60% were in secondary education level. Almost one forth (24%) of the patients were house maker followed by 17.7% were students, 16%, 10.9%, 9.1%, 8.6%, 8%, 2.9% and 2.9% were service holders, jobless, not applicable, day labor, business, expatriate and others respectively. Average monthly family income was Tk. 23891.43 ± 13033.76 and 40.6% had Tk. 10001-20000, 28.5% had Tk. 20001-30000, 14.9% had Tk. 10000 and below, 9.7% had Tk. above 40000 and 6.3% had Tk. 30001-40000 monthly family income (Table 1).

Table 1: Socio-demographic characteristics of the patients (n=175)

Attributes		f (%)
Age(Years)	≤17	39 (22.3)
	18 - 34	62 (35.4)
	35 - 51	28 (16.0)
	>51	46 (26.3)
	Mean (±SD) Age= 33.69 (± 21.33) Years	
Gender	Male	83 (47.4)
	Female	56 (32.0)
	Children	36 (20.6)
Place of residence	Rural	92 (52.6)
	Urban	83 (47.4)
Education	Informal education	29 (16.6)
	Primary education	47 (26.9)
	Secondary education	36 (20.6)
	Higher secondary	22 (12.6)
	Graduate and above	26 (14.9)
	Pre-school child	15 (8.6)
Occupation	House maker	42 (24.0)
	Students	31 (17.7)
	Service holders	28 (16.0)
	Jobless	19 (10.9)
	Pre-school child	16 (9.1)
	Day labor	15 (8.6)
	Business	14 (8.0)
	Expatriate	5 (2.9)
	Others	5 (2.9)
Monthly family income (Tk.)	≤10000	26 (14.9)
	10001-20000	71 (40.6)
	20001-30000	50 (28.5)
	30001-40000	11 (6.3)
	>40000	17 (9.7)

Majority of the patients (53.8%) waiting time for collecting ticket was 0-5 minutes. 14.3%; 12.6%; 12%; 4% and 3.4% respondents waiting time for collecting ticket were 6-10 minutes; 16-20 minutes;

11-15 minutes; 21-25 minutes and 26-30 minutes respectively (Table 2). Majority of the patients (69.1%) waiting time for consultation with doctors was 0-5 minutes. 16.5%; 4.6%; 3.4%; 3.4% and 2.9% respondents waiting time for consultation with doctors were 6-10 minutes; 16-20 minutes; 11-15 minutes; 26-30 minutes and 21-25 minutes respectively

Table 2: Distribution of the patients according to waiting time for collecting ticket and consultation with doctors (in minutes) (n=175)

Waiting time for (Minutes)	Collecting ticket f (%)	Consultation with doctors f (%)	Time in minute
0-5	94(53.8)	121(69.1)	Min: <1 Max: 30
6-10	25(14.3)	29(16.5)	
11-15	21(12)	6(3.4)	
16-20	22(12.6)	8(4.6)	
21-25	7(4)	5(2.9)	
26-30	6(3.4)	6(3.4)	
Mean (±SD)	8.06 (±7.98)	5.46 (± 6.95)	

Highest proportion of the patients (45.7%) physical examination were performed within 2 minutes by ED doctors. 24%; 13.1%; 6.9%; 5.1% and 5.1% patients physical examination performed within 3 minutes; 1 minute; 4 minutes; <1 minute and 5 minutes respectively (Table 3).

Table 3: Distribution of the patients according to duration of physical examination (in minutes) (n=175)

Duration of physical examination (Minutes)	f (%)	Mean (±SD)
<1	9(5.1)	2.30 (±1.11) Min: <1 Max: 5
1	23(13.1)	
2	80(45.7)	
3	42(24)	
4	12(6.9)	
5	9(5.1)	
Total	**175(100)**	

Highest proportion of the patients (47.7%) waiting time for nursing service were 0-5 minutes. 20.4%; 18% and 13,7% patients waiting time for nursing service were 6-10 minutes; 16-20 minutes and 11-15 minutes respectively (Table 4).

Majority (41.1%), patients` overall waiting time in ED was 0-5 minutes; 32% patients` were 11-30 minutes; 18.9% were 6-10 minutes and 8% were 31-60 minutes (Table 5).

From 1st to 30th September, 2018 average patient entered in ED per day Saturday; Sunday; Monday; Tuesday; Wednesday; Thursday and Friday; were 856; 884; 848; 775; 765; 753 and 717 patients respectively (Figure 1).

Table 4: Distribution of the patients according to waiting time for nursing service (in minutes) (n=44)

Waiting time for nursing service (Minutes)	f (%)	Mean (±SD)
0-5	21(47.7)	8 (±6.22) Min: <1 Max: 20
6-10	9(20.4)	
11-15	6(13.7)	
16-20	8(18)	
Total	**44(100)**	

Table 5: Distribution of the patients according to overall waiting in ED (n=175)

Overall waiting time in ED (Minutes)	f (%)
0-5	72(41.1)
6-10	33(18.9)
11-30	56(32.0)
31-60	14(8.0)
Total	175(100.0)

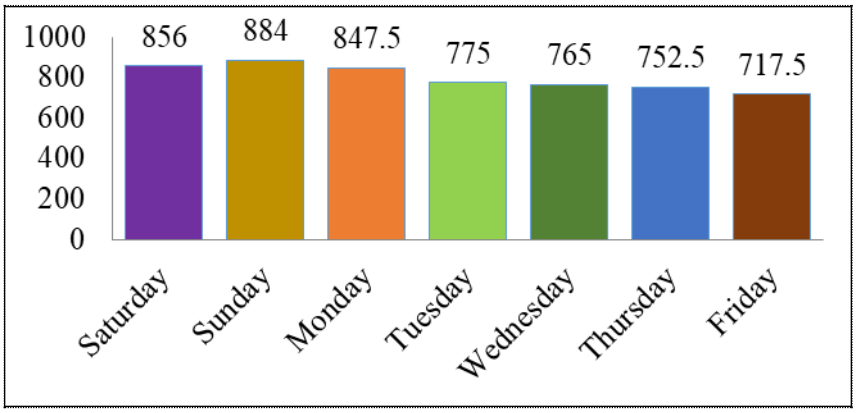

Figure 1: Distribution of the patients according to average patient attendance per day in ED (n=30 days)

Total number of patients visited ED in September, 2018 was 24200, average 807/ day. From this table it was revealed that doctor and patients` ratio was 1:115; nurse and patients ratio was 1:58, ticket provider and patients` ratio was 1:115 and Trolley, wheel chair bearer and patients ratio was 1:40 (Table 6).

Table 6: Distribution of the respondents according to service providers and patient's ratio in ED

Categories of service providers	Number of service providers	Service providers: patients per day
Doctors	7	1:115
Nurses	14	1:58
Ticket providers	7	1:115
Trolleys/wheels chairs bearer	20	1:40

Majority of the patient (57.7%) was transferred to IPD; 16.6% to minor OT of ED; 9.7% to CCU; 8.6% sent home with treatment and 7.4% patients were transferred to casualty from ED (Figure 2).

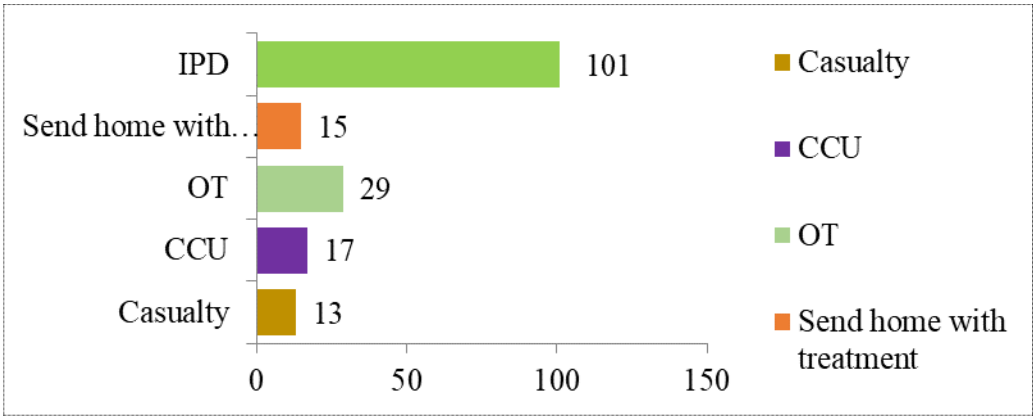

Figure 2: Distribution of the patients according to transferring patients to other units (n=175)

Among the 77 patients, 37(48.1%) found satisfied due to less waiting time (0-5 minutes) and among 65 patients, 30(46.2%) found dissatisfied due to more waiting time (11-30 minutes). Statistically significant relationship was found between satisfaction on overall management and overall waiting time of Emergency department (χ^2 = 22.47, df=6, p=0.001) [Table 7].

Table 7: Relation between satisfaction on overall management of ED and overall waiting time in ED (n=175)

Satisfaction on management of ED	Waiting time in ED (minutes)				Total	Significance
	0-5	6-10	11-30	31-60		
Satisfied	37 (48.1%)	18 (23.4%)	19 (24.7%)	3 (3.9%)	77 (100%)	χ^2= 22.47 df=6 p=0.001
Dissatisfied	19 (29.2%)	6 (9.2%)	30 (46.2%)	10 (15.4%)	65 (100%)	
Uncertain	16 (48.5%)	9 (27.3%)	7 (21.2%)	1 (3%)	33 (100%)	
Total	72 (41.1%)	33 (18.9%)	56 (32%)	14 (8%)	175 (100%)	

DISCUSSION

This cross sectional study was conducted at Emergency department of Chattagram Medical College and Hospital. Highest number of the service receivers 62(35.4%) belonged to the age group of 18 to 34 years, and lowest number of the respondents 28(16%) belonged to the age group of 35 to 51 years. Mean age of the respondents was 33.69 ± 21.33 years. According to a study by Ahmed et al., (2014) found that, highest number of the respondents 49(30.6%) belonged to the age group of 46 to 54 years, and lowest number of the respondents 33(20.6%) belonged to the age group of above 55 years [6]. Highest proportion of the service receivers 47.40% were male, 32% were female and 20.6% were child. Most of them were Muslim 81.7%. According to a study by Australian Institute of Health and Welfare 2015 found emergency department presentations were evenly split for males (50.3%) and females (49.7%) [7].Among service receivers 47(26.9%) had primary education level and 36(20.60%) had secondary education level. According to a study by Worku and Loha, 2017 found that, highest number of the respondents 31.7% were high school education [8]. In this study highest proportion of the service receivers 42(24%) were

house maker. In a study of Rahman R, et al.,(2016) found that highest proportion of the respondent 28 (18.9%) were house makers [9]. As most of the female population of Bangladesh are house makers.

In this study majority of the service receivers 83(47.4%) were married. According to a study by Jalili et al., found that, 54.7% of patients were married and 45.3% were single, widowed, or divorced [5]. Highest 40.6% service receivers' monthly family income were 10001-20000 Tk. According to a study by Rahman et al.,(2016) found that majority of the respondent 34(23%) monthly family income were Tk. 5001-10000. [9].

Monthly family income indicates Economic status of a family. In this study majority of the service receivers 92(52.6%) came from rural community and 83(47.4%) from urban. In a study by Worku and Loha, 2017 found that, residence of the clients were urban 242(59.5%) and rural 165 (40.5%) [8]. as maximum people live in rural community and there are no tertiary level hospitals.

In this study majority 94(53.8%) waiting time for collecting ticket were 0-5 minutes. Majority 121(69.1%) waiting time for consultation with doctors were 0-5 minutes, 80(45.7%) physical examination performed within 2 minutes performed by ED doctors, 21(47.7%) waiting time for nursing service were 0-5 minutes. Highest proportion of the service receivers` 72(41.1%) average waiting time in ED were 0-5 minutes. According to a study by Atari, M. and Atari, M., 2015 found highest 158(52.5%) of the respondents overall waiting time in ED were 0-5 minutes [10]. In a study by Australian Institute of Health and Welfare (2016–17) found that the median waiting time for Emergency presentations was 19 minutes, ranging from 14 minutes in New South Wales to 30 minutes in both the Australian Capital Territory and the Northern Territory [7].

In this study majority of the service receivers 101(57.7%) were transferred to IPD and 23(23.23%) were transferred to the Medicine of IPD from ED. In a study by Jitesh Dhingra et al., found that, Most of the Patients 56.08% were transferred to the Medicine of IPD from ED [11]. Opinion regarding overall management, 45.7% was satisfied. According to a study by Worku and Loha, 2017 found that, satisfaction rate in the professional care rendered by overall management 86.6% [8]. In a study by Ahmed et al., (2014) found that Opinion regarding the service overall management were found satisfied in 88.4 % respondents [6].

From 1 September 2018 to 30 Septembers 2018 average patient entered in ED per day Saturday; Sunday; Monday; Tuesday; Wednesday; Thursday and Friday were 856; 884; 848; 775; 765; 753 and 717 patients respectively. Total number of patients visited ED was 24200 in September, 2018, on average 807/ day which revealed that doctor and patients ratio was 1:115; nurse and patients ratio was 1:58; ticket provider and patients ratio was 1:115 and Trolley, wheel chair bearer and patients ratio was 1:40.In the ED there were 7 doctors, 14 nurses, 3 office assistant, 7 ticket providers, 2 security guard and 1driver. Wheel chairs and trolley bearers were 20 in number and they were only non-government service holders. In a study by Ferdous et al (2014), in Dhaka medical college emergency department 10 medical officers were posted and all the staffs were not trained properly. The supporting staffs were available but need adequate to run the emergency department smoothly. Security service was available but not adequate. [12]. statistically significant relationship was found between opinion regarding overall management and overall waiting time of emergency department. ($\chi^2 = 22.47$, p=0.001).

CONCLUSION

The aim of the study was to assess waiting time of ED. Highest proportion of the service receivers were middle aged, Muslim, male from middle class, rural population having mid-level education. Average waiting time for collecting ticket, consultation with doctor, physical examination and nursing services were eight minutes, six minutes, two minutes and eight minutes respectively. More than two fifth patients overall waiting time were within five minutes. More than half of the service receivers were transferred to IPD, out of them almost one forth patients were transferred to the Medicine. More than two fifth service receivers opined satisfaction about overall management. Significant relationship was also found between the waiting time and opinion of service receivers regarding overall management of ED.

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