

A Study on Disease Patterns and Treatment Seeking Behaviors among the University Resident Students

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Abstract

As one of the fundamental human rights, healthcare is usually sought during illness episode. A questionnaire-based survey was conducted on 221 residential university students to identify the existing disease patterns and treatment seeking behaviors. Among the students, 22.17% were devoid of normal body-weight and 45.7% of them exercise at least three days a week. Based on smoking habits they were non-smoker (60.18%), smoker (25.34%), and second-hand smoker (14.48%). Besides, 33.03% of them have an allergy (seasonal: 24.43%; perennial: 8.60%) and 75.11% of students' family members have or had at least one of the eight specified diseases. In 2019, around 98% of the students had suffered from at least one illness like fever-all types (86.43%), common cold (52.94%), diarrhea (20.36%), cough (46.61%), nasal congestion (10.86%), pain/aches-all types (25.79%), gastric problems (49.32%), skin diseases (15.38%), dental diseases (1.36%), eye diseases (0.9%), and many other diseases (4.52%). To mitigate these illnesses majority took medications instead of self-recovery that was highest for dental and eye diseases (100%), and lowest for cough (58.25%) and nasal congestion (58.33%). Usually, 61.99% of the residents go to Government Hospital (DMCH: 45.70%, BSMMU: 9.95%) for seeking treatment followed by University Medical Center (41.63%), Private Medical Consultant (5.88%), Private Hospital (4.52%), and others (3.62%). Moreover, 67.42% of the students take prescribed medicines as stated in prescriptions. As there is a tendency among 83.26% of the students to take medicines without prescriptions, raising awareness on the detrimental impacts of self-treatment is needed to refrain them from self-medication practices.

Keywords: Disease patterns, Treatment seeking behaviors, Prescription, Medications.

Introduction

Healthcare is one of the basic human rights as important as the right to food and shelter (United Nations, 1948). Health or treatment seeking behavior information is essential for providing necessity-based healthcare services to any population. In-depth study on a community or age-group can superbly reflect the actual scenario of disease patterns and what are the preferences in the case of seeking healthcare services in a certain social setting (Rahman *et al.*, 2011).

In 2017, an estimation of 10.39M global death was occurred by CMNN (communicable, maternal, neonatal, and nutritional diseases), representing 18.6% of the global death and the mortality rate was 143.8 per 100,000 people (Roth *et al.*, 2018). The major causes of death and disability in Bangladesh attributable to communicable diseases are pneumonia, diarrheal diseases, HIV/AIDS, tuberculosis, malaria, and vector-borne diseases such as dengue, kala-azar, and filariasis (Muhammad *et al.*, 2016).

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In 2016, noncommunicable diseases (NCDs) were responsible for 41M (71%) of the 57M worldwide deaths and were accountable for an estimate of 67% of all national deaths in Bangladesh (WHO, 2018). The global high increase in noncommunicable diseases is mainly due to several preventable major risk factors such as behavioral risk factors e.g., tobacco use (either smoked or smokeless form), harmful use of alcohol, physical inactivity, and unhealthy diet, as well as environmental air pollution. These behaviors lead to many major metabolic or physiological changes such as raised blood pressure, overweight or obesity, raised blood glucose, and raised blood lipids that are linked with many diseases including the four major NCDs such as cardiovascular diseases, cancers, chronic respiratory diseases and diabetes (WHO, 2018).

In 2010, tobacco smoking including second-hand smoke was responsible for 6.3% of DALYs (disability-adjusted life years) worldwide whereas in 1990 it was 6.1% (Lim et al., 2012). Adults who are insufficiently physically active i.e., who don't involve in at least 150 minutes of moderate-intensity physical activity per week, or its equivalent (WHO, 2010), have a 20-30% increased risk of all-cause mortality compared to physically active adults (WHO, 2014). About nine out of ten people breathe air that does not comply with the WHO Air Quality Guidelines (WHO, 2016). Overweight (BMI ≥ 25 kg/m²) and obesity (BMI ≥ 30 kg/m²) were accounted for an estimate of 3.4M deaths per year and 93.6M DALYs in 2010 (Lim et al., 2012).

A lot of studies demonstrate that family history is a strong and non-modifiable risk factor for numerous common chronic diseases including cardiovascular disease, stroke, type 2 diabetes, breast cancer, colorectal cancer, prostate cancer, ovarian cancer, osteoporosis and asthma (Rubinstein, 2013). Family members resemble each other in risk of specific diseases because of shared biological, environmental, and behavioral factors (Yoon et al., 2002).

In Bangladeshi adults, the common risk factors of NCDs are inadequate intake of fruit and

vegetables, use of tobacco, low level of physical activity, abdominal obesity, and hypertension (Zaman et al., 2016).

There is a lacking of sufficient studies to reveal disease patterns and treatment seeking behaviors among the students taking higher education from different universities of Bangladesh, though they comprise a significant portion of the young adult in the country. Hence, the objectives of our study are to find out what are the common diseases or illnesses prevalent among the university resident students; to identify prevailing familial and behavioral or lifestyle-related risk factors for common chronic noncommunicable diseases; to assess what are the preferences in utilizing healthcare facilities during sickness; to determine what are the medicines that are usually taken without prescription to mitigate illnesses; and to determine whether they are adherent to treatment regimen or not.

Methodology

Study design: This study had been completed by executing a field survey. A semi-structured questionnaire was prepared to collect information from the respondents. The data was collected by purposive sampling method during a period of 20 days from 26 February to 16 March, 2020. The survey was conducted over 221 male resident students from different residential halls.

Evaluation of data: 'Microsoft Office Excel 2016' was used for the tabulation, analysis and graphical presentation of survey data. Besides, 'DIMS-ITmedicus' (iOS version 1.6.9), a mobile drug index apps of Bangladesh, was utilized for converting brand name of the medicines into the generic name.

Results and Discussion

Findings from the analysis of demographic features of the respondents: The age of the 221 participants in this survey ranged between 18 to 28 and the mean age of them was 22.29 (SD ± 1.901) years. By using body-weight and height of the respondents, Body Mass Index (BMI) was

determined and it was found that the BMI of the students ranged between 15.05 to 35.95; the mean BMI of them was 22.16 (SD \pm 2.89). Among the 221 students, 19 (8.60%) students were underweight, 172 (77.83%) students were in normal weight, 28 (12.67%) students were overweight, and 2 (0.90%) students were obese as shown in Table 1.

Findings from the analysis of risk factor profiles of the respondents: From the question “Do you

exercise regularly?” it was found that 101 (45.7%) out of 221 students exercise regularly (at least three days in a week). Students who exercise regularly are mostly involved in walking followed by cycling, sports, running, gym and swimming. Besides, weekly exercise time of the resident students who exercise regularly were also assessed and shown in Table 2.

Table 1. BMI nutritional status of the study population.

Nutritional status	Body mass index (kg/m ²)	Frequency (N=221)	Percentage
Underweight	<18.5	19	8.60%
Normal	18.5 - 24.9	172	77.83%
Overweight	25.0 - 29.9	28	12.67%
Obese	\geq 30	2	0.90%

Table 2. Regular physical activity status of the respondents.

Category	Frequency (N=221)	Percentage (of total)	Percentage within regular exercise group (N=101)
Exercise regularly	101	45.7%	
Types of exercise			
Walking	71	32.13%	70.30%
Running	10	4.52%	9.90%
Cycling	26	11.76%	25.74%
Sports	25	11.31%	24.75%
Swimming	3	1.36%	2.97%
Gym	10	4.52%	9.90%
Others	4	1.81%	3.96%
Exercise time (minutes/week)			
<100	14	6.33%	13.86%
100-150	24	10.86%	23.76%
151-300	40	18.10%	39.60%
301-420	13	5.88%	12.87%
>420	10	4.52%	9.90%
Don't exercise regularly	120	54.3%	

In the survey questionnaire, smoking habit of the students was also queried and it was revealed that out of the 221 participants, most of them were nonsmoker (133; 60.18%) followed by smoker (56; 25.34%) and second-hand smoker (32; 14.48%).

Besides, among the smoker (56), 58.93% of them have or had cough related to smoking and among the second-hand smoker (32), it was found to be 12.5% (Table 3).

There was a question to find out how long the students spend time in outside i.e., time exposure to outdoor dust and it was revealed that on average they spend 4.16 hours per day (SD \pm 2.33) in outdoor. Among the students, 148 (66.97%) of them had no dust allergy, and 73 (seasonal: 24.43% and perennial: 8.60%) students responded they had allergy as shown in the Table 4.

There was also a question to find out family history of some common chronic diseases (diabetes, hypertension, cancer, heart diseases, hepatitis, asthma, osteoarthritis and thyroid diseases), and it was revealed that 75.11% (166) of students' family members have or had at least one of the stated diseases and no positive family history of disease was found in 24.89% (55) of students (Table 5).

Table 3. Categorization of the students based on smoking habit.

Category	Frequency (N=221)	Percentage (of total)	Percentage of each category
Smoker	56	25.34%	
Nonsmoker	133	60.18%	
Secondary Smoker	32	14.48%	
Have or had cough associated with smoking			
Smoker	33	14.93%	58.93%
Secondary Smoker	4	1.81%	12.5%

Table 4. Comparison of the students based on daily time exposure to outdoor dust.

Exposure to outdoor dust (hours/day)	Students having no dust allergy		Students having dust allergy			
			Seasonal		Perennial	
	Frequency	% (N=221)	Frequency	% (N=221)	Frequency	% (N=221)
\leq 2	45	20.36%	13	5.88%	5	2.26%
3-4	40	18.10%	25	11.31%	8	3.62%
5-6	43	19.46%	10	4.52%	3	1.36%
6-8	11	4.98%	4	1.81%	3	1.36%
\geq 9	9	4.07%	2	0.90%	0	0.00%
Total	148	66.97%	54	24.43%	19	8.60%

Table 5. Family history of disease of the students.

Family history of disease of the students	Frequency (N=221)	Percentage
At least one stated disease	166	75.11%
Diabetes	78	35.29%
Hypertension	87	39.37%
Cancer	3	1.36%
Heart diseases	45	20.36%
Hepatitis	10	4.52%
Asthma	29	13.12%
Osteoarthritis	6	2.71%
Thyroid diseases	11	4.98%
No positive family history of the diseases	55	24.89%

Disease patterns, and treatment seeking and other related behaviors of the respondents: Over 98% of respondents had suffered from at least one symptomatic disease or illness during the year of 2019. They suffered mainly from some general illnesses like fever-all types (86.43%), common cold (52.94%), diarrhea (20.36%), cough (46.61%), nasal congestion (10.86%), pain/aches-all types (25.79%), gastric problems (49.32%). Besides, they also suffered from skin diseases (15.38%), dental diseases (1.36%), eye diseases (0.9%), and many other

diseases (4.52%) throughout the year of 2019 (Table 6).

To mitigate the illnesses majority of the students took medications instead of self-recovery and it was highest for dental and eye diseases (100%) and lowest for cough (58.25%) and nasal congestion (58.33%). They also took medications for fever-all types (90.58%), common cold (67.52%), diarrhea (80.00%), pain/aches-all types (64.91%), gastric problems (92.66%), skin diseases (79.41%) and many other diseases (80.00%) (Table 6).

Table 6. Medications taking status and common diseases or illnesses occurred to the study population in the year of 2019.

Diseases or illnesses occurred in 2019	Number of students	Percentage (of total)	Medications were taken for the illnesses		No medications were taken for the illnesses	
			Number	% of the students who had each disease	Number	% of the students who had each disease
No illness	4	1.81%				
Fever (all types)	191	86.43%	173	90.58%	18	9.42%
Common Cold	117	52.94%	79	67.52%	38	32.48%
Diarrhea	45	20.36%	36	80.00%	9	20.00%
Cough	103	46.61%	60	58.25%	43	41.75%
Nasal Congestion	24	10.86%	14	58.33%	10	41.67%
Pain/aches (all types)	57	25.79%	37	64.91%	20	35.09%
Gastric problems	109	49.32%	101	92.66%	8	7.34%
Skin diseases	34	15.38%	27	79.41%	7	20.59%
Dental diseases	3	1.36%	3	100.00%	-	-
Eye diseases	2	0.90%	2	100.00%	-	-
Others	10	4.52%	8	80.00%	2	20.00%

And, from where they had sought care from any source of healthcare or engaged in self-treatment for the illnesses that occurred in 2019 is given in Table 7.

From the question “Where do you usually go to seek treatment?”, it was revealed that majority (61.99%) of students gave preferences to Government Hospitals. Among the Government Hospitals, they usually utilize specifically Dhaka Medical College and Hospital (DMCH) [45.70%] and Bangabandhu Sheikh Mujib Medical University (BSMMU) [9.95%]. It’s noteworthy that some

participants responded to multiple options. Moreover, they also showed preferences for University Medical Center (41.63%), Private Medical Consultant (5.88%), Private Hospital (4.52%), and other health care facilities (3.62%) as given in Table 8.

Table 7. Treatment seeking behaviors of the students who took medications for the illnesses.

Diseases or illnesses occurred in 2019	Took Medications	Govt. Hospital		DU Medical Center		Private Hospital		Private Consultant		Self-treatment		Others	
		N	n	%	n	%	n	%	n	%	n	%	n
Fever (all types)	173	31	17.92	29	16.76	3	1.73	6	3.47	101	58.38	6	3.47
Common cold	79	17	21.52	15	18.99	2	2.53	5	6.33	38	48.10	3	3.80
Diarrhea	36	7	19.44	10	27.78	2	5.56	1	2.78	17	47.22	1	2.78
Cough	60	8	13.33	9	15.00	1	1.67	4	6.67	35	58.33	4	6.67
Nasal congestion	14	4	28.57	4	28.57	2	14.29	4	28.57	1	7.14	2	14.29
Pain/aches (all types)	37	4	10.81	6	16.22	1	2.70	4	10.81	24	64.86	1	2.70
Gastric problems	101	15	14.85	13	12.87	1	0.99	5	4.95	65	64.36	3	2.97
Skin diseases	27	11	40.74	3	11.11	1	3.70	6	22.22	5	18.52	2	7.41
Dental diseases	3	1	33.33	-	-	1	33.33	1	33.33	-	-	-	-
Eye diseases	2	1	50.00	-	-	-	-	1	50.00	-	-	-	-
Others	8	3	37.50	1	12.50	-	-	-	-	1	12.50	3	37.50

Here, n: number; %: percentage of the students who took the medicines for each illness.

Table 8. Preferences to available healthcare facilities by the respondents.

Students where usually go to seek treatment	Hospitals' name	Frequency (N=221)	Percentage
Govt. Hospital	DMCH	101	45.70%
	BSMMU	22	9.95%
	Not specified	14	6.33%
	Total	137	61.99%
Private Hospital		10	4.52%
University Medical Center		92	41.63%
Private Consultant		13	5.88%
Others		8	3.62%

DMCH: Dhaka Medical College and Hospital; BSMMU: Bangabandhu Sheikh Mujib Medical University Hospital.

To find out treatment adherence there was a question in the questionnaire and it was revealed that 67.42% (149) of students take prescribed medicines as stated in prescriptions whereas 26.70% (59) of students take occasionally and 5.88% (13) of students don't take medicines according to physician prescriptions. The detailed result is presented in the following Table 9.

From the question "Do you take any medicine without prescription?", it was found that 83.26% (184) of the students took or take some medicines without prescriptions whereas only 16.67% (37) of the students responded they usually don't take any medications without prescriptions. The result is also shown in the following Table 9.

Table 9. Treatment adherence and tendency of taking medicines without physicians' prescription among the students.

Question pattern	Response pattern	Frequency (N=221)	Percentage
Treatment adherence	Yes	149	67.42%
	No	13	5.88%
	Sometimes	59	26.70%
Taking medicines without physicians' prescription	Yes	184	83.26%
	No	37	16.74%

Conclusion

In conclusion, this study reflects the existing scenarios regarding disease patterns and treatment seeking behaviors among the students of residence halls. As the majority of the students take many prescription drugs without physicians' prescriptions, raising awareness among the students on the detrimental impacts of self-treatment is needed to refrain them from self-medication practices. Moreover, in the current study, it was observed that many modifiable risk factors of noncommunicable diseases such as lifestyle-related factors- irregular physical exercise, smoking habit; unhealthy body weight (underweight, overweight and obese) as well as non-modifiable risk factors such as family history of diseases are prevalent among the students. Therefore, it is suggested that students should be encouraged to minimize the risk factors as well as they should be cautious about the harmful effect of familial diseases as early as possible.

This study has also some limitations. In this study the sample size was small, and data was collected only from male students, and therefore, cautions should be taken to generalize the data for nationwide university students. Basically, this study will provide us a primary guideline for future work; and henceforth, conducting a comprehensive study on the topics will help us to find out the actual scenario of disease patterns and treatment seeking

behaviors of the university students of Bangladesh; and findings of such study can be replicated to formulate policy measures to improve the health status of the university students.

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