



How accommodation impacts on health status, food habit and academic performance of university students: A cross-sectional study in Bangladesh

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Abstract

Objective: Living set-up may have an effect on one's health, food habit and academic performance. In this regards, the study aimed to assess the health status, food habits and academic performance depending on their residence.

Materials and methods: This cross-sectional study was conducted on 900 university students aged 18-26 years from January to April, 2019. Students were categorized based on their accommodation including students stay at home, stay at campus and students stay with private facility. Statistical analysis was done by using Microsoft office excel 2010.

Results: Students living in university dormitory were more anxious as well as depressed compared with that of students stay at home and students stay with private facility. Home living students led a better physical health status than students living in dormitory or out campus private facility. They had also the highest mean score for every events (breakfast 1.83, lunch 2.24, snacks 2.06 and dinner 2.75) of meal per day while the lowest mean score for every cases occupied by the university dormitory living students (breakfast 1.21, lunch 1.89, snacks 1.88 and dinner 2.53).

Conclusion: The home living student's academic performance was better than that of other two groups. University dormitory living students were leading an unhealthy life styles than that of other students. So, it is indispensable to develop various facilities especially dinning facility for them.

Keywords: Students; health status; food habit; academic performance; university; Bangladesh.



Introduction

University is one of the most important thing in a person's life. Because it involves both education and the youth's culture. By this period, numerous students decided to live away from their home and live near to university due to many different reasons such as the university is very far from home, parents live in another district, etc. This living set-up may change their life styles. Before the start of university life, there is the adjudication for the need of living far from the home in order to live near to the university and to minimize the load of the necessity for long hours of travelling back and forth. Some students decide to do this also because they want to be freer and to live away from their home. This decision may either help the student, or give him/her a hard time during university. This factor may have an effect on one's mental health, physical health, food habit and academic performance.

Students living in university dormitory have the unique needs and problems and also particular physical and mental characteristics. As they have to live away from family, they have to share facilities and common areas, such as bedroom, kitchen, dining area, study room and television room. For that, they have to learn to manage their own affairs, and adjust to new conditions [1-3]. They are also subject to less parenteral control that leads to poor diet habits, deprivation of sleep or acquiring of new habits, such as drug use and smoking which do not help positively to the development of a healthy lifestyle [4]. It also determines an important part of the deaths and illnesses [5].

The health habits of university students, who represent a major segment of the young population, are a particular concern, since they are at a stage of their lives during which significant lifestyle modifications take place [6]. Denton *et al.*, observed different health status of university students depending on gender difference [7]. Different structural contexts for genders (age, social support, and family arrangement), lifestyle (smoking, drinking, exercise, diet) and psychosocial factors (critical life events, stress, and psychological resources) were responsible for this difference. Structural and psychosocial factors such as stress and lower levels of self-esteem and sense of coherence were the major factors that influence women's health, while health behaviors such as smoking, drinking and physical activity were major factors which affect men's health [7]. Moreover, it is very advantageous for the university population to develop and lead a healthy lifestyle especially for future health and education professionals since they will be responsible for the inspiration of healthy habits among future generations [8]. This fact has brought up research on university students' lifestyle, particularly in those students who are doing a health-related university degree [9, 10]. However, the comparative life style of university dormitory, out campus private facility and home living students is not clear.

Considering all the evidence, the study aimed explore the different life styles of the students of Noakhali Science and Technology University who are living in home and away from home. The main objective was to identify or ascertain the difference of the student's health, food habit and academic performance who are living in home, out campus private facility and university dormitory.

Materials and methods

Study design and sampling

Respondents were selected from Noakhali Science and Technology University from January to April, 2019 for this cross-sectional study. A simple random sampling method was used for the selection of study participants. The total students were 900 aged 18-26 years including 300 students for each university dormitory, out campus private facility and home living in where 208 participants were male and 82 were female. The participants were selectively assigned to read



about the topic. To avoid the risk of biases, study participants were selected and listed with the help of student's ID card. The study protocol was approved by the research committee of the department of pharmacy of Noakhali Science and Technology University.

Study questionnaire

The questionnaire was adopted from formerly published studies and our research committee added some questions. There were various sections in the survey including demographic information, physical and mental health, food habit and academic performance.

Data collection

The process of data collection was divided into three steps. The first step involves to fill up the questionnaire containing socio-demographic and anthropometric information by the study subjects. The second step was to navel on group discussion about the study protocol and the third step was to verify the interviews with the key informants. The questionnaires were distributed to selected students together with a written consent form that explained the purpose of the research with the assurance of their confidentiality. The students were told that their participation was anonymous and entirely voluntary and there was no reward for taking part. They were invited to complete the questionnaire. We were present on hand to answer questions or clarify any doubts that they might have. All filled questionnaires were collected by us one by one.

Statistical analysis

All data obtained were entered into a Microsoft Office Excel 2010 spreadsheet and exported for analyses. Microsoft office Excel 2010 program was used for data analysis and for chart, graph, and diagram preparation.

Results

Socio-demographic profile

Table 1 shows the socio-demographic profile of the university students in Bangladesh. Student were categorized into three groups based on their accommodation including home, university dormitory and out campus private facility. Equal number of participants from each group were selected by the field investigator. About 72.67% of students were male while female comprised of 27.33% of students. The highest number of students were in the age group 21-23 years with a percentage of 48.89% while the lowest number of students were in the age group 24-26 years with a percentage of 23.33%. Rest 27.78% of students were in the age group 18-21 years. Among the students, 18.89% students were from the 1st year, 28.89% from the 2nd year, 32.22% from the 3rd year, and 20.00% of respondents were from the final year respectively.

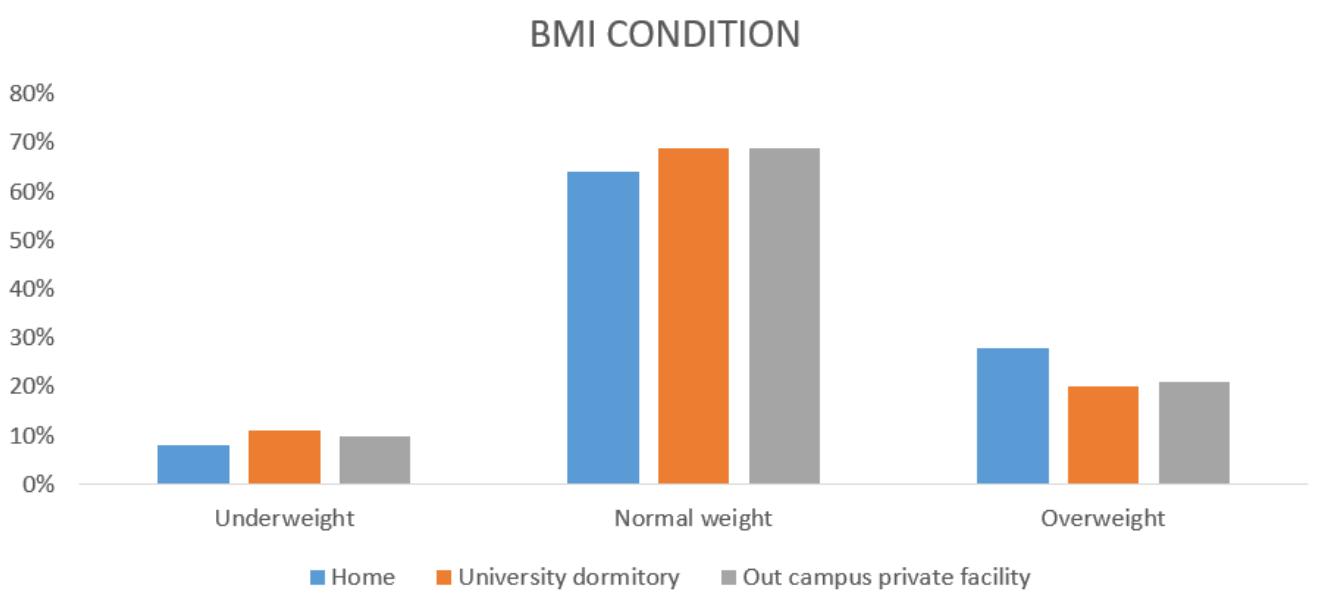
Items	Response	Number (n)	Percentage (%)
Respondents	Home	300	33.33
	University dormitory	300	33.33
	Out campus private facility	300	33.33
Gender	Male	654	72.67
	Female	246	27.33
Age	18-20 years	250	27.78
	21-23 years	440	48.89
	24-26 years	210	23.33
Year of study	1st year	170	18.89
	2nd year	260	28.89

3rd year	290	32.22
final year	180	20

Table 1. Socio-demographic profile of the respondents

Health status of students

BMI may be considered as an indicator to evaluate the physical fitness of an individual. Based on BMI classification of weight status, the majority of students was in normal weight as presented in **Figure 1**. The prevalence of overweight was more frequent among home living students (28.00%) than that of the students living away from home. However, out campus private facility living students (21.00%) were slightly overweight than university dormitory living students (20.00%).

**Figure 1.** Comparison of BMI condition among the students of living home, university dormitory and out campus private facility

Seven indicators describing the physical health conditions of students are narrated in **Table 2**. As regards, mental and physical health conditions of home living students were more likely to rate their health better than both university dormitory and out campus private facility living students. Our study showed that students living in university dormitory were significantly more anxious ($p = 0.012$) as well as depressed ($p = 0.032$) compare to the students living at home. But the comparison between students living at out-campus private facility and at home was not significant. In addition, anxiety and depression were more prevalent among the students living at university dormitory than that of the students living at building with private facility and at home. About 22% and 11% of university dormitory living students reported to moderate and severe anxiety in comparison with 17% and 5% of students who live at building from out campus private facility. Whereas, only 13% moderately and 3% severely anxious home living students were found in this study. In regards depression, the order of moderate and severe depression for students stay at university dormitory, at building of out-campus private facility and at home were 22%, 20% and 13%; 10%, 6% and 3% respectively. The parameters considered for evaluating physical health conditions were headache, GIT problems, fever and respiratory problems. Every parameter was significantly ($p < 0.05$) identified with higher number among the students living at university dormitory compare with that of students living at home. However, only respiratory problems and

fever were significantly higher among the students with private facility compare with that of students living at home. Every indicator was considered in five levels of attacking frequency such as never, 1-2 times, 3-4 times, 5-6 times and more. Among home, university dormitory and out campus private facility living students who faced the tabulated problems reported the highest percentages at 1-2 times attacking frequency for every illness such as headache (61%, 43% and 51%), fever (28%, 37% and 32%) GIT problems (45%, 43% and 58%), respiratory problems (22%, 32% and 25%) and tiredness or fatigue (59%, 46% and 52%). The highest percentage of participants who suffered headache, respiratory problems and fatigue more than 5-6 times went to the university dormitory living group (11%, 5% and 20%) but GIT problems and fever reported to out campus private facility living students (7% and 1%).

Items	Frequency	Home (N = 300)	University dormitory (N = 300)	Out campus private facility (N = 300)	pa, pb
		Percentage	Percentage	Percentage	
Anxiety	Normal	44%	27%	35%	0.012, 0.538
	Mild	40%	40%	43%	
	Moderate	13%	22%	17%	
	Severe	3%	11%	5%	
Depression	Normal	46%	30%	34%	0.032, 0.288
	Mild	38%	38%	40%	
	Moderate	13%	22%	20%	
	Severe	3%	10%	6%	
Headache	Never	23%	16%	21%	0.003, 0.308
	1-2 times	61%	43%	51%	
	3-4 times	7%	21%	15%	
	5-6 times	5%	9%	6%	
	More	4%	11%	7%	
GIT problems	Never	45%	23%	24%	0.039, 0.83
	1-2 times	45%	43%	58%	
	3-4 times	7%	14%	8%	
	5-6 times	3%	14%	3%	
	More	0%	6%	7%	
Fever	Never	70%	56%	63%	0.000, 0.000
	1-2 times	28%	37%	32%	
	3-4 times	2%	6%	4%	
	5-6 times	0%	1%	0%	
	More	0%	0%	1%	
Respiratory problems	Never	72%	54%	64%	0.000, 0.000
	1-2 times	22%	32%	25%	
	3-4 times	4%	7%	8%	
	5-6 times	0%	62%	1%	
	More	2%	5%	2%	
Tired/Fatigue	Never	11%	8%	18%	0.000, 0.183
	1-2 times	59%	46%	52%	
	3-4 times	16%	15%	17%	
	5-6 times	8%	11%	7%	
	More	6%	20%	6%	

Table 2. Mental and physical health conditions of students 1. pa indicates significance level when compared between students living at home and university dormitory. 2. pb indicates significance level when compared between students living at home and out campus private facility. 3. $p < 0.05$ was considered as significant* indicates significance p value. 4. Statistical analysis was done by chi-square test. 5. Statistics calculations were done on standard formatted questionnaires.

Food habits

Impact of accommodation on food habits of university students is demonstrated in **Table 3**. Students living with parents showed better eating habits in terms of all parameters such as breakfast, lunch, evening snake and dinner in contrast to students living away from home, such as in university dormitory ($p = 0.008$, $p = 0.052$, $p = 0.121$, $p = 0.001$) or in out-campus private facility building ($p = 0.165$, $p = 0.756$, $p = 0.152$, $p = 0.745$). Our study found the greater percentage of participants living at home who had their breakfast (17%), lunch (23%), snake (17%) and dinner (43%) regularly compared with that of students staying away from home including students staying at university dormitory and out-campus private facility buildings. In addition; between later two groups, the higher number of self-funded out-campus living students had their breakfast (14%), lunch (28%), snake (13%) and dinner (41%) regularly than that of students living at university dormitory (4%, 9%, 8% and 19% respectively).

Items	Frequency	Home (300)	University dormitory (300)		Out campus private facility (300)	
		Percentage	Percentage	pa	Percentage	pb
Breakfast	Never	17%	28%	0.008	12%	0.165
	A few times	31%	38%		40%	
	Sometimes	21%	23%		28%	
	Often	14%	7%		6%	
	Daily	17%	4%		14%	
Lunch	Never	9%	6%	0.052	7%	0.756
	A few times	25%	36%		23%	
	Sometimes	24%	30%		28%	
	Often	19%	19%		14%	
	Daily	23%	9%		28%	
Evening snake	Never	12%	16%	0.121	5%	0.152
	A few times	24%	36%		37%	
	Sometimes	27%	26%		29%	
	Often	20%	14%		16%	
	Daily	17%	8%		13%	
Dinner	Never	4%	4%	0.001	8%	0.745
	A few times	13%	26%		14%	
	Sometimes	30%	29%		30%	
	Often	10%	22%		7%	
	Daily	43%	19%		41%	

Table 3. Comparison of food habits of students based on their living place 1. pa indicates significance level when compared between students living at home and university dormitory2. pb indicates significance level when compared between students living at home and out campus private facility3. $p < 0.05$ was considered as significant4. * indicates significance p value5. Statistical analysis was done by chi-square test6. Statistics calculations were done on standard formatted questionnaires

Figure 2 demonstrates the mean score obtained for different types of food consumed by students of all three groups (Home living, dormitory living and out-campus private facility). Our study found that university dormitory living students were very fond of fast food, meat and soft drinks compared with that of students from the rest two groups. They reported the highest mean score for these food items. The opposite scenario was observed in case of fish, fresh vegetables and fruits. However, both home and out campus private facility living students obtained the equivalent mean score for almost all food items enlisted in our study.

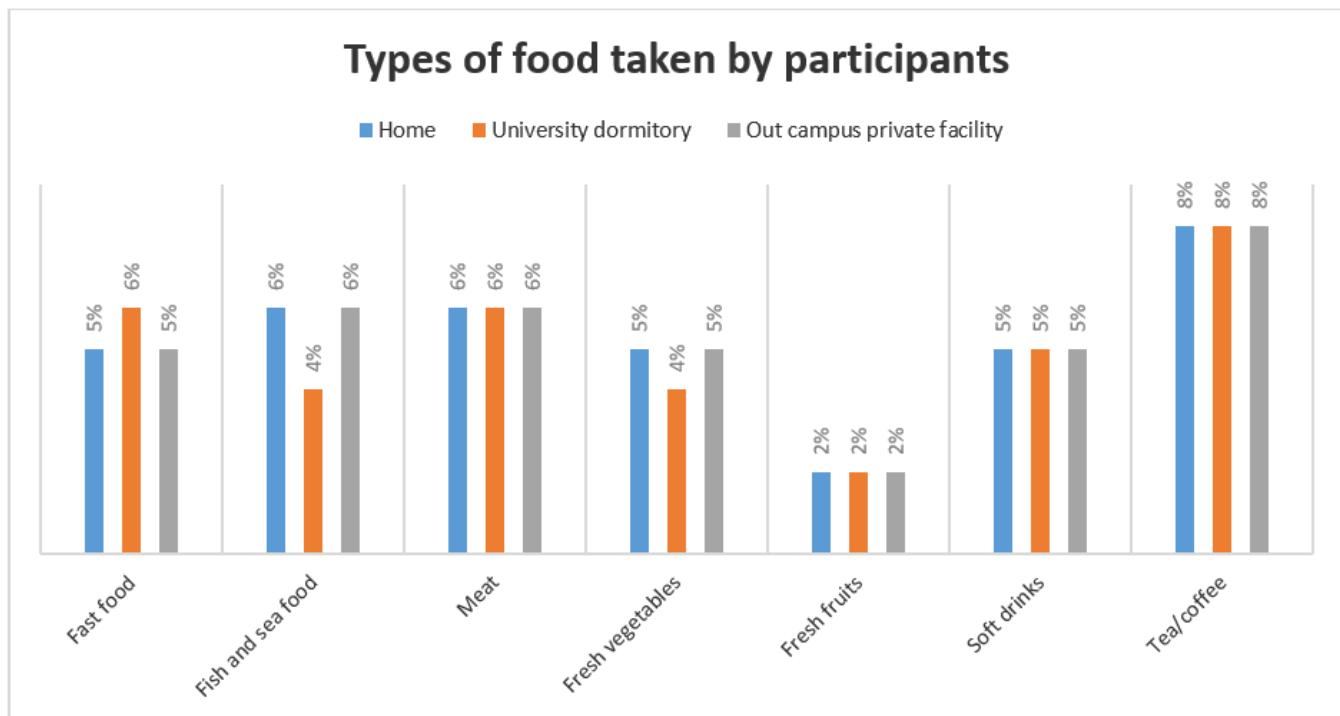


Figure 2. Comparison of mean score of different food items taken by participants

Academic performance

Table 4 represents the impact of accommodation on academic performance of university students. Academic performance of students living at home were better than those who were living at university dormitory or at building, away from campus, with private facility. Our study found that about 58%, 61%, 64% and 68% of home living students enjoyed doing academic study, listening lecture attentively, doing assignment actively and participating in presentation, discussion etc. in class respectively. On the other hand, students living at university dormitory were not as good as students stay away from home with self-funded private facility buildings in term of attentiveness in class (42% and 50% respectively), doing assignment (55% and 60%) and participation in presentation, discussion and answering questions (43% and 62%). They also felt more stress in the exam hall (70%) and less satisfaction about their daily performance (34%) in compared with that of students stay at home (58% and 49%) and building with private facility (66% and 44%).

Items	Answer	Home (N = 300)	University dormitory (N = 300)		Out campus private facility (N = 300)	
		Percentage	Percentage	pa	Percentage	pb
Do you Enjoy studying?	Yes	58%	38%	0.005	29%	0.000
	No	42%	62%		71%	
Do you Able to listen attentively to the lecture of your teacher?	Yes	61%	42%	0.007	50%	0.118
	No	39%	58%		50%	
Do you Actively complete your assignments?	Yes	64%	55%	0.195	60%	0.560
	No	36%	45%		40%	
Do you Feel the pleasure to actively participate in	Yes	68%	43%	0.000	62%	0.374

the discussion, presentation, answering questions, etc.?	No	32%	57%		38%	
Do you Feel stress in the exam university dormitory?	Yes	58%	70%	0.077	66%	0.244
	No	42%	30%		34%	
Do you Feel that your performance was increasing day by day?	Yes	49%	34%	0.031	44%	0.478
	No	51%	66%		56%	

Table 4. Academic performance of students based on their living place 1. pa indicates significance level when compared between students living at home and university dormitor. 2. pb indicates significance level when compared between students living at home and out campus private facility. 3. p <0.05 was considered as significant. 4. * indicates significance p value. 5. Statistical analysis was done by chi-square test. 6. Statistics calculations were done on standard formatted questionnaires

Discussion

Our study found that students living in university dormitory were more anxious as well as depressed compare to both home and out campus private facility living students. University dormitory living students reported the lowest percentage in the score range for normal level of both anxiety and depression, indicating the highest prevalence of anxiety and depression. On the other hand, home living students reported the lowest prevalence of anxiety and depression. This indicates home living students enjoy better mental health than university dormitory as well as out campus private facility living students. However, this prevalence of anxiety and depression for students both living at and away from home was higher than that observed among university sportsmen in Bangladesh [11], athlete students of Kerman University of Medical Sciences [12] and medical students in Croatia [13]. A previous study conducted in eight universities in Hong Kong documented the prevalence of mild to severe anxiety and depressive symptoms among students that was almost similar to our finding reported among students stay at home; however, our findings, for both students living in university dormitory and students living with private facilities, were greater in percentage than that of their finding for university students [14]. Another study conducted in Jahangirnagar university in Bangladesh reported a prevalence of both anxiety and depression that was greater than that our finding for students stay at home and smaller than that our findings for students stay away from home [15].

BMI level of each respondents was studied to evaluate their physical fitness. The prevalence of overweight was more frequent among home living students (28.00%) that might be due to having huge amount of homemade food. This finding was greater than that reported in karbala university in Iraq [16] and in a study conducted among university students from 22 countries [17]. However, our findings for students stay away from home, such as in university hall or out campus facility, was smaller than that of these previous findings.

The present study also demonstrated that home living students also lead a better physical health than students living in university dormitory or out campus private facility. Every parameter, including GIT problems; headache; respiratory problems; fever and fatigue, considered for evaluating physical health was significantly ($p < 0.05$) observed with higher percent among the students living at university dormitory compare with that of students living at home. However, only respiratory problems and fever were significantly higher among the students with private facility compare with that of students living at home. Our study observed better health conditions of home living students as opposed to university dormitory living students and intermediate health condition for out-campus private facility living study. According to our study, respiratory problems; fever; GIT problems and headache were more prevalent among the students in Bangladesh compared with that of students in Université de Sherbrooke [18], Wolaita Sodo University [19] and medical students



in Iran [20]. The prevalence of respiratory and GIT problems, among students stay at or away home, was also more in percentage than that of university sportsman in Bangladesh [11].

In case of meal per day, students living at home and away from home did not take their breakfast regularly; however, they were very conscious about their dinner and had it regularly. Students who lived with their family had the highest mean score for every events of meal per day while the lowest mean score for every cases went to the university dormitory living students. The highest mean score in getting meal per day indicates the better food habits of students who live at home and the lowest mean score represents the worst food habits of university dormitory living students. A study conducted in northern Italy also found the better dietary habits of student who stay with family compared with that of students who live away from home [21].

Our study found that students stay at home had better academic performance than students stay with private facility and those who lived in university dormitory. Because, they were more attentive to their lesson and class lecture. They also enjoyed to do study; completed assignment actively and participated in the discussion, presentation that might help them to improve their academic performance and make a good result. The reason behind this may be the learning skill and study habit that depend on the academic interaction and home environment [22]. However, several studies conducted in Nigeria and United States claimed that students living on campus perform better academically [23, 24]. This study had some limitations as we faced some complications during the survey. We selected only 900 students for data collection due to the shortage of time for the research work. So the represented data does not give the whole scenario of all the students of the country. If we had included more students in the study, we would have got a more extensive scenario on the outcome of our study. Additionally, students were less familiar with some terminologies and complications arose regarding understanding the questionnaire. They needed further explanation. However, many students were busy with their examinations and lab work; so collecting data from them was slightly difficult. Finally, social desirability bias may have impacted the responses since the interviews were done in person.

Conclusion

As the dormitory facility in our university is insufficient, most of the students prefer to stay at home. Students living away from home especially the university dormitory living students were leading unhealthy life styles than the students living at home and out campus private facility. They also suffered more in general anxiety, depression and did not follow a balanced diet. They missed their daily meals more compared with that of out campus private facility and home living students due to poor quality of meal. This lead to poor academic performance by the university dormitory living students. So, our study recommends that it is very essential to develop various facilities especially dinning facility for university dormitory living students.

Conflict of interest

The author(s) have no conflicts of interest relevant to this article.

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