A Cross Sectional Comparative Study Evaluating Quality of Health and Sanitation in Students at Hostels in Ahmedabad, Gujarat

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Abstract
BACKGROUND- The teenage years are a phase of turmoil due to social, physical and mental changes. Various factors can affect the health of students such as the close living accommodation and decrease in personal space. In this study we aim to assess and look into the sanitary facilities available to students living in dorms and hostels as well as its impact on their health

METHODOLOGY- A cross sectioned study was conducted using a questionnaire. The questionnaire was sent to 230 students out of which 155 responded. The analysis of the data was done using Microsoft excel, chi test and kruskal wallis test.

RESULTS- A greater percentage of students in hostels had a BMI below 18.5 than those at home. There is a statistically significant association between students in hostels and having poor dietary habits, perceived health status and level of satisfaction with the accommodation. A significant association was found between occurrence of diarrhoea/vomiting and the students living at hostels as compared to those at home. There is increased occurrence of vector-based disease for students in hostels

CONCLUSION- The study points towards a need to address the issues in the current system by implementing changes like how student and staff should be emphasized about the importance of sanitation and methods to improve personal as well as environmental hygiene, frequent health and sanitation inspections and by forming a post to overlook the workers in charge of cleaning the rooms and the premises.

Keywords: Hostel, Public Health, Sanitation, Students

INTRODUCTION

Sanitation refers to the access and use of facilities for safe disposal of human urine and excreta. [1]Safe sanitation is a mandatory requirement for the mental and physical well-being of an individual. [1] As it is hostel life presents with different challenges that have a multifaceted impact on the student. Being away from home and managing their affairs themselves is a daunting prospect [2, 3].

Various factors can affect the health of students including but not limited to the availability of facilities, the lack of parental control which can negatively influence and disinhibit the student [4], the close living accommodation and decrease in personal space can serve as a factor too [5]. The late teenage years are a phase of turmoil primarily due to social but also due to physical and mental changes. [6] These changes also contribute to changes in their attitude towards their health and their surrounding environment.

We must also take into account the fact that the most accurate goal for colleges and education institutions is described as an improved academic performance [7, 8]

for which good health is an absolute necessity. Hence, a regular assessment of health and taking steps to improve health amongst students should be a priority.

In this study we aim to assess and look into the sanitary facilities available to students living in dorms and hostels as well as its impact on their health. It is essential for us to look into different factors that might be negatively affecting students because that would help us fix those issues and possibly provide us with means to increase the effectiveness of the education system and improve the overall quality of our society

METHODOLOGY

A cross sectioned study was conducted using a pre formed questionnaire sent using Google forms. The questionnaire was distributed through Whatsapp and via email to students of undergraduate and post graduate level. It was distributed to colleges of various fields such as MBBS, Bcom, physiotherapy, PharmD, Bachelors of law. Informed consent was taken, and ethical approval was approved. The study has been conducted in Ahmedabad and done in June 2020.

The questionnaire asked the student about their height and weight, along with that they were also asked to self assess and report their health status, dietary habits and level of satisfaction with living accommodation on a 5 point Likert scale with 5= Very Good , 4= Good, 3= average, 2= Poor, 1= Very Poor.

These responses were analysed using the kruskal wallis ANOVA test. Students were asked to self report the occurrence of a bout of acute gastroenteritis (in past 6 months) and/or the occurrence of any vector based disease (malaria, dengue, chikungunya) in the previous year. Other information collected included age, sex, mode of accommodation (home or hostel), duration of residence as well as about number of people per room and its cleaning patterns. Chi square test was used as a statistical method to establish a significant association amongst various variables.

The analysis of the data was done using Microsoft Excel and Google forms. All tables and figures used in this study are original.

No funding was used for this study.

RESULTS

The questionnaire was sent to 230 students out of which 155 responded. 100 responses were attained from males and 55 from females. Responses from

students in hostel were 83 and from those at home were 72. The mean age is 20.2 years. The mean duration of residence for those at home is 11.5 years while for those in hostels it is 2.35 years.

The results showed that greater percentage of students in hostels had a BMI below 18.5, 21 (25.3%) compared to 15 (20.8%) for those at home. There was equal percentage of students in healthy range of BMI-59 (71%) students each at hostel and home. There were an increased percentage of students living in home that had a BMI greater than 25-6 (8.35%) compared to those at hostel-3 (3.7%) (**TABLE 1**)

Students living in hostels also showed lower level of satisfaction with living accommodation, 60 (83.3%) students at home reported a good or very good level of satisfaction with mode of accommodation compared to 33 (39.7%) students at hostels. In terms of dietary habits 41 (57%) students at home reported a good or very good diet compared to 33 (39.7%) students at hostels. In perceived health status 59 (82%) students at home reported as good or very good compared to 59 (72%) hostel students that self-reported a good or very good perceived health status **(TABLE 2).** The students were asked to self-report occurrence of diarrhoea and vomiting where 29 (35%) students at hostel reported the occurrence compared to 13 (18%) for students at home. A significant association was found between occurrence of diarrhoea/vomiting and the students living at hostels as compared to those at home **(TABLE 3).** In case of vector-based diseases like malaria and chikungunya 9 (10.8%) students at hostel reported its occurrence compared to 3 (4.2%) students at home **(TABLE 4)**. On both the accounts occurrence was much higher in students in hostel than at home

The results also showed that students at hostel had more people per room since 82 (98.7%) of hostel students had 2 or more people per room compared to 44 (61%) students at home (**FIGURE 1**). There is also a lesser frequency of room cleaning per week amongst hostel students as 50 (60%) students at hostel had their rooms cleaned less than 4 times a week, compared to 16 (22.1%) students at home **(FIGURE 2)**. Students were asked what they thought could be possible reasons for poor hygiene and health in hostels and it was found that 94 (60.6**%)** students felt it was due to inadequate personnel to clean hostels, 72 (46.6**%)** felt that it was due to lack of proper waste disposal, 75 (48.6**%**) believed that the attitude of students

contributed to poor health and hygiene, 110 (71**%**) felt that it was due to improper maintenance of facilities, 15 (10%) students felt that hostels do not have poor sanitation.

DISCUSSION

The results from the survey highlighted an important problem which is the suboptimal maintenance of facilities causing poor sanitation, diet and subsequently poor health amongst students in dorms and hostels which can be established by lower BMI, health status and dietary habits. There is a very stark difference between frequency of room cleaning which point towards poor sanitation and improper use of facilities. The other parameters judged in this study have also been known to point towards an unsanitary environment. Increased occurrence of diarrhoeal disease has been linked to contamination of stored drinking water in a study conducted in Honduran communities. [9] Along with an association with unsafe drinking water diarrhoeal diseases have also been linked to unsanitary disposal of excreta and poor hygiene as seen in studies done by Yale University in the United States. [10]

Similarly an increased prevalence of vector based diseases such as malaria and dengue also have a well-established link with presence of stagnant water as has been evaluated in sub Saharan and Asian countries[11] which can be and have been combated successfully with better sanitation practices. Like water even food contamination is likely to occur due to increased vectors in store rooms and can cause more diseases as was observed in a study done at a hostel in Ghana. [12] The presence of increased vector-based diseases points towards poor management of drainage systems as well as a lax approach towards trying and reducing occurrence of such diseases.

Another detail that has to be noted is the increased residential density in hostels. Their effect on the transmission of communicable diseases is well established in previous studies like one on transmission of measles and other infectious diseases influenced by population density.[13] A study in Varanasi showed the ill effects of overcrowding on both the mental and physical health of the students.[14] We must also keep in mind that studies on human ecology have pointed that increased population density and overcrowding can lead to anxiety, and feeling of reduced control, safety and privacy. [15, 16]

CONCLUSION AND RECOMMEDATIONS

The data from our study established an important link between mode of accommodation and health status amongst students and there are multiple steps that can be taken to improve the situation which would not only help the students with their mental and physical health but also improve their education in the longer run. Every student should be emphasized about the importance of sanitation and methods to improve personal as well as environmental hygiene, importance of a good diet and adequate exercise must be underlined too. This can be done by providing regular health education to the students as well as to the staff at the hostels at regular intervals. There should be timely assessment by the authorities to optimize the correct use of facilities.

A high percentage of people believed that there is inadequate maintenance of facilities in hostels and the personnel to whom the task is assigned are not up to the mark, this is a problem which can be countered by frequent health and sanitation inspections and by forming a post to overlook the workers in charge of cleaning the rooms, washrooms, and lobby. Regular cleaning of water tanks and coolers must also be done. The students on their behalf can make sure that they avoid being complacent about hygiene and that they report any suboptimal maintenance of facilities to the concerned authorities. Such steps would go a long way in helping improve the health and hygiene of students living in hostels

REFERENCES

1. World Health Organization. Guidelines on sanitation and health. Available at https://apps.who.int/iris/bitstream/handle/10665/274939/9789241514705-eng.pdf

2. Last accessed on 9th June 2021 World Health Organization. University health services: fourteenth report of the WHO Expert Committee on Professional and Technical Education of Medical and Auxiliary Personnel [meeting held in Geneva from 27 April to 1 May 1965].

3. Bush HS, Thompson M, Van Tubergen N. Personal assessment of stress factors for college students. Journal of school health. 1985 Nov;55(9):370-5.

4. Walker SN, Sechrist KR, Pender NJ. The health-promoting lifestyle profile: development and psychometric characteristics. Nursing research. 1987 Mar.

5. Bayram N, Bilgel N. The prevalence and socio-demographic correlations of depression, anxiety and stress among a group of university students. Social psychiatry and psychiatric epidemiology. 2008 Aug 1;43(8):667-72.

6. Johansson SE, Sundquist J. Change in lifestyle factors and their influence on health status and all-cause mortality. International journal of epidemiology. 1999 Dec 1;28(6):1073-80.

7. Cutrona CE, Cole V, Colangelo N, Assouline SG, Russell DW. Perceived parental social support and academic achievement: An attachment theory perspective. Journal of personality and social psychology. 1994 Feb;66(2):369.

8. Lall R, Schandler SL. Michigan Alcohol Screening Test (MAST) scores and academic performance in college students. College Student Journal. 1991 Jun.

9. Trevett AF, Carter RC, Tyrrel SF. The importance of domestic water quality management in the context of faecal–oral disease transmission. Journal of water and health. 2005 Sep;3(3):259-70.

10. Montgomery MA, Elimelech M. Water and sanitation in developing countries: including health in the equation. Environmental science & technology. 2007 Jan 1;41(1):17-24.

11. Bartram J, Lewis K, Lenton R, Wright A. Focusing on improved water and sanitation for health. The Lancet. 2005 Feb 26;365(9461):810-2

12. Mahami T, Odonkor ST. Food safety risks associated with tertiary students in self catering hostels in Accra Ghana. International Journal of Biology, Pharmacy and Allied Sciences. 2012;1(4):537-50.

13. Tarwater PM, Martin CF. Effects of population density on the spread of disease. Complexity. 2001 Jul;6(6):29-36.

14. Srivastava J. STUDY ON THE EFFECTS OF OVERCROWDING ON THE PHYSICAL AND MENTAL HEALTH OF HOSTEL OCCUPANTS IN VARANASI. Indian Journal of Scientific Research. 2017 Sep 1:68-73
McCarthy D, Saegert S. Residential density, social overload, and social withdrawal. Human Ecology. 1978 Sep 1;6(3):253-72.

15. Adhvaryu A, Nyshadham A, Xu H. Hostel takeover: Living conditions, reference dependence, and the well-being of migrant workers. Working Paper; 2018.

TABLE 1 Distribution of students living at hostel and at home as per BMI

BMI	NUMBER OF STUDENTS AT HOSTEL (%)	NUMBER OF STUDENTS AT HOME (%)	TOTAL
<18.5	21 (25.3%)	15 (20.8%)	36 (23.22%)
18.5-25	59 (71%)	51 (71%)	110 (71%)
>25	2 (2.5%)	5 (7%)	7 (4.5%)
>30	1 (1.2%)	1 (1.35%)	2 (1.2%)
TOTAL	83 (53.6%)	72 (46.4%)	155
P value 0.552429			

TABLE 2 Distribution of students on the basis of perceived health status, dietary status and level of satisfaction with mode of accommodation

	STUDENTS AT HOSTEL			STUDENTS AT HOME		
	PERCIEVED HEALTH STATUS	DIETARY STATUS	LEVEL OF SATISFACTION	PERCIEVED HEALTH STATUS	DIETARY STATUS	LEVEL OF SATISFACTION
VERY GOOD	17 (20.7%)	5 (6%)	10 (12%)	26 (36.1%)	15 (20.8%)	36 (50%)
GOOD	42 (51.2%)	28 (33.7%)	23 (27.7%)	33 (45.8%)	26 (36.1%)	24 (33.3%)
AVERAGE	21 (25.6%)	34 (41%)	38 (45.8%)	8 (11.1%)	22 (30.5%)	9 (12.5%)
POOR	2 (2.45%)	15 (18%)	8 (9.6%)	3 (4.1%)	7 (9.7%)	0 (0%)
VERY POOR	1 (1.2%)	1 (1.2%)	4 (4.8%)	2 (2.7%)	2 (2.7%)	3 (4.1%)

P value for- Perceived health status- <0.04888

Dietary status- <0.01623

Level of satisfaction with mode of accommodation- <0.00001

Statistical analysis done using Kruskal Wallis ANOVA test

Table 3 Distribution of students on the basis of occurrence of diarrhoea vomiting in past 6 months

PARAMETER USED		STUDENTS AT HOSTEL (%)	STUDENTS AT HOME (%)
OCCURRENCE OF DIARRHOEA/VOMITING IN LAST 6 MONTHS	YES	29 (34.9%)	13 (18%)
	NO	54 (65.1%)	59 (72%)
P value 0.018335*			

* Indicates significant association (p< 0.05)

Table 4 Distribution of students on the basis of occurrence of common vector based diseases in past 12 months

PARAMETER USED		STUDENTS AT HOSTEL (%)	STUDENTS AT HOME (%)
OCCURRENCE OF VECTOR BASED DISEASE IN LAST 12 MONTHS	YES	9 (10.8%)	3 (4.1%)
	NO	72 (89.2%)	69 (95.9%)
P value 0.110769			

FIGURE 1 Distribution of students on the basis of number of people living in a room
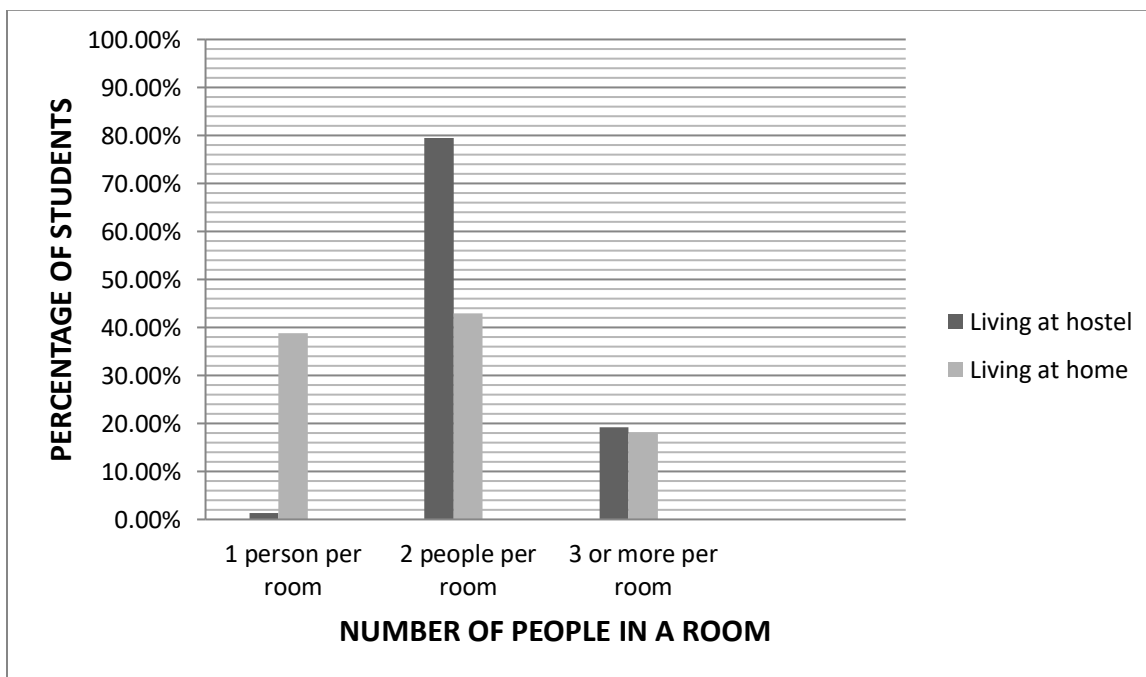
FIGURE 2 Distribution of students on the basis of frequency of cleaning their room per week