

General Disease Trends Among Students at University of Haripur, Pakistan

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Abstract

Background: Globally, university students face significant stress due to academic demands, extracurricular responsibilities, and daily challenges. This psychological strain often manifests as mild to moderate physical symptoms. The primary objective of this study was to examine the types and frequency of health complaints reported by students.

Methodology: The study was conducted at a university campus with over 4,000 enrolled students. Data were collected over a ten-month period, during which 1,061 students sought medical attention at the university clinic. Data analysis was performed using R software.

Results: The most reported health issues were generalized body aches (42.5%), upper respiratory tract infections (16.4%), abdominal pain or diarrhoea (14.7%), fever (12.4%), and flu-like symptoms (9.3%). A gender-based breakdown showed a higher incidence among male students (59.4%) compared to females (40.6%). Semester-wise distribution revealed the second semester as the most affected (24.6%). Department-wise analysis indicated that students from Information Technology (21%) reported the highest number of health complaints, followed by Medical Laboratory Technology (16.1%) and Microbiology (10.3%). Time series analysis identified a peak in reported cases between January and April 2019.

Conclusion: The findings highlight a substantial burden of physical health complaints among university students, linked to academic stress. The results underscore the need for targeted health communication and wellness strategies to support students' physical and mental well-being during their academic tenure.

Keywords: University students; health complaints; stress; time series analysis; disease patterns

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Introduction

College and university life is a critical period for individuals as they transition from adolescence to adulthood (1). However, this transition can be challenging, especially for students who relocate for higher education (2) which is a common practice in the context of Pakistan where majority of students have to relocate to cities for this purpose. Relocation, coupled with the stresses of transitioning to a new phase of life, can negatively affect the well-being of university students (3). The shift from high school to university level is a key contributor to altering values and lifestyles among young people, particularly those who are new to university (4). Moreover, university students are more likely to experience psychological distress as compared to their non-university peers (5). This stress can lead to somatic symptoms such as gastrointestinal, respiratory, and cardiac issues which can negatively affect their academic performance and personal growth of the students (6,7).

Although there have been numerous studies analyzing the mental health of university students, the physical health of students in developing countries such as Pakistan remains a neglected area of research. A significant statistical relationship has been found between students' academic performance and health (8). Frequent or recurring illnesses can have a negative influence on student attendance, involvement, and achievement of academic goals (9). On the other hand, students who adapt healthy behaviors and lifestyles tend to have better academic performance (10). A study conducted in China found a positive association between physical health and academic



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performance (11). Common health problems observed in universities include cold and flu, throat infections, fever, allergies, nausea, and vomiting (12). Poor health not only affects the well-being of individual students but also the quality of education provided by the university. Therefore, understanding the health trends of university students may help university administrators and policymakers identify areas of action to protect students' health (13). This information is particularly important in developing countries such as Pakistan, where the health of university students is still a neglected topic.

With over 60% of Pakistan's population under thirty, the country has a youthful and expanding demography (14). Enrollment of students in universities is on the rise. The government of Pakistan's survey in 2017-2018 has shown that there were 1.6 million students enrolled in universities in 2018. The World Bank has estimated that 12% of Pakistanis were enrolled in post-secondary institutes (Universities, trade schools and colleges) in 2019. Rise in the number of students in universities in Pakistan is seen every year which is a positive indicator according to the world bank (15). As the number of students in the universities is significant, their health demands need to be given due priority. This study aims to identify the common health problems experienced by public sector university students in Pakistan, with a focus on differences by gender, semester, and major subject/department.

Methodology

Ethical Approval:

The study was approved by the Research Ethics/Bioethics committee (UOH/DASR/2023/1529) and Ethics certificate was issued, as per University of Haripur ethical policy, for the research. The study was conducted in accordance with the ethical standards established by the Declaration of Helsinki.

Study Design:

A descriptive cross-sectional study was conducted in the University of Haripur. The university is in the Haripur district of Khyber Pakhtunkhwa province, Pakistan. We collected health data from all undergraduate students who visited the university clinic with various health complaints between January 2019 and October 2019. It's important to note that the university clinic serves as the sole healthcare facility within the university premises.

Inclusion Criteria:

University students (all departments, semesters and both male and female) who visited the university clinic with various health complaints were included in the study.

Exclusion Criteria:

University students who did not have any recorded health complaints or did not visit the university clinic for treatment or check-up were excluded from the study. In addition, students who showed acute, severe symptoms and were sent to a hospital in emergency were also excluded.

Data Collection:

The health complaints and concerns of the university students were recorded by the clinic staff and the physician of the clinic. The collected data included the individual student ID, with

additional information of gender, department, semester, concerned health complaints and date of visit to the university clinic. Further analysis was done thereafter.

Data Cleaning:

Original data had spelling mistakes and various terms for an individual symptom. The data was entered into the Excel sheet and cleaned to ensure uniformity. This involved correcting misspelled complaints and standardizing the terminology used to describe health complaints. For instance, "Generalized Body Aches" was used to denote fatigue, body discomfort, and muscle aches.

Statistical Analysis

The data was organized into Excel files, and descriptive statistical analysis was performed using R software. The frequency of the most common health complaints among students was assessed based on gender, semester, and department. The results were conveyed through graphical representations.

Results

Most common health complaints during study period

Throughout the study period, a range of health complaints was observed among the participants. The most prevalent health issue was Generalized Body Aches (42.5%), followed by Upper Respiratory Tract Infections (16.4%) and Abdominal Pain/Diarrhea (14.7%). Fever (12.4%) and Flu (9.3%) were also frequent concerns. Toothache (3.2%), Allergy (2.73%) and Nausea/Vomiting (2.5%) were noted, indicating a diversity of health problems. Injury (1.8%) and Backache (0.9%) rounded out the list of common complaints. These findings shed light on the prominent health challenges faced by the study population.

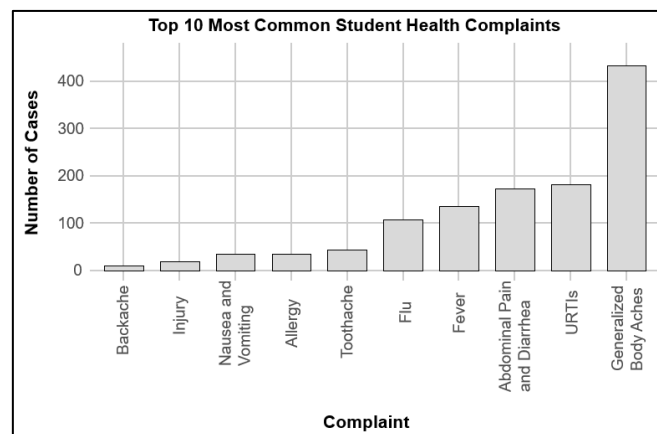


Figure 1: Most Common Health Complaints during Study Period

Gender-Based trends of Health Complaints

During the study period, health problems were more prevalent among male students, with 631 individuals (59.4%) reporting health problems. In contrast, 430 female students (40.6%) reported experiencing health issues. Moreover, specifics of the top 10 health complaints reported by gender reveal noteworthy patterns. Among female participants, 'Generalized Body Aches' emerged as the most frequently reported issue, with 184 instances, followed by 'Abdominal Pain/Diarrhea' (50 instances)

and 'URTIs' (46). Similarly, male students commonly reported 'Generalized Body Aches' (219), 'URTIs' (128), and 'Abdominal Pain/Diarrhea' (106). Notably, 'Fever' and 'Flu' exhibited higher prevalence among males, with 88 and 74 instances, respectively, compared to 43 and 25 instances among females.

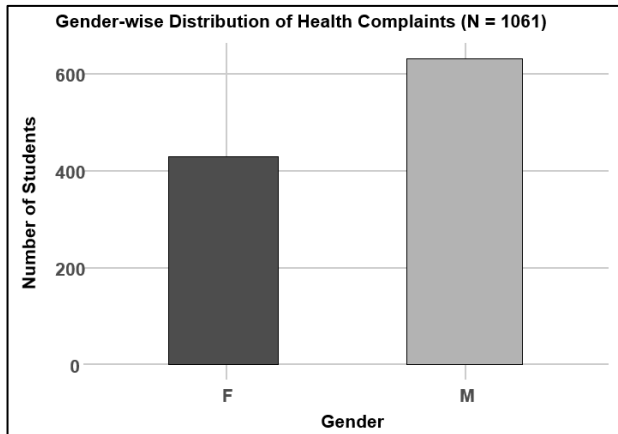


Figure 2: Gender-wise Health Complaints

Semester-Based trends of Health Complaints

Health complaints across academic semesters revealed distinct patterns in the distribution of reported health issues. The 2nd semester exhibited the highest prevalence of health complaints, accounting for 24.6% of the total reported cases. Followed by the 4th semester accounted for 17.5% of health complaints, while the 6th semester reported 14.2%. In contrast, the 5th semester reported a relatively lower percentage of complaints at 5.9%. Moreover, it was strikingly evident that 'Generalized Body Aches' and 'URTIs' consistently ranked as the most prevalent health complaints in nearly all semesters. However, a notable deviation was observed in the 4th semester, where 'Abdominal Pain/Diarrhea' emerged as the second most frequently reported complaint following 'Generalized Body Aches'.

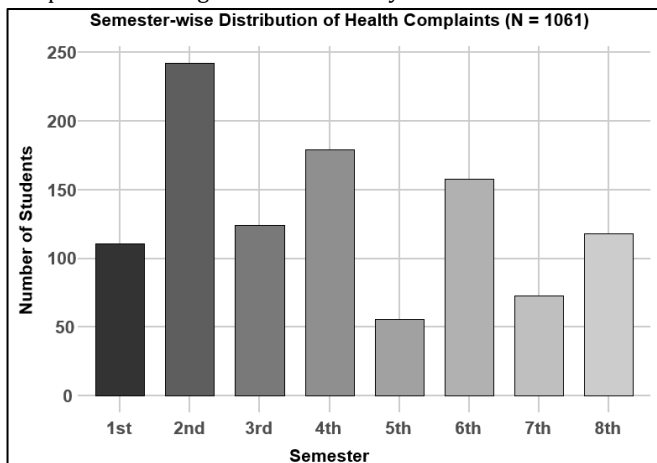


Figure 3: Semester-wise Health Complaints

Department- Wise trends of Health Complaints

The analysis revealed that the highest number of health complaints was reported by students in the IT (information technology) department, totaling 233 complaints, followed closely by the MLT (medical laboratory technology) department

with 171 complaints and the department of microbiology with 109 complaints. Conversely, students in the IRS (Islamic and religious studies) department reported the fewest health complaints, with only 13 instances, while the education and economics departments reported 40 and 26 complaints, respectively. Amongst all the departments the "Generalized Body Aches" was the most prevalent health complaints reported by the students.

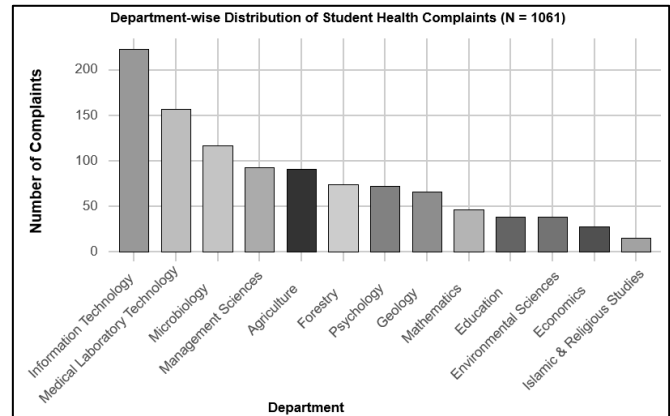


Figure 4: Department-wise Health Complaints

Time series analysis

The data revealed considerable variations in reported health complaints across different months. Notably, March and April of 2019 emerged as peak months, with 221 and 170 cases, respectively, while January, February, and October also significantly contributed to the overall complaint count during the study period. Conversely, the months of July and August reported notably fewer cases, with 20 and 24, respectively. This pattern suggests potential seasonal influences on health-related complaints, with higher cases observed during the early months of the year and a notable reduction during the summer vacation period.

Generalized Body Aches consistently featured as a prominent concern throughout the study duration, other than May and August where URTIs were reported as the most prevalent disease. Furthermore, significant fever cases were noted in January, February, March, June, and July, with the presence of flu specifically observed in March.

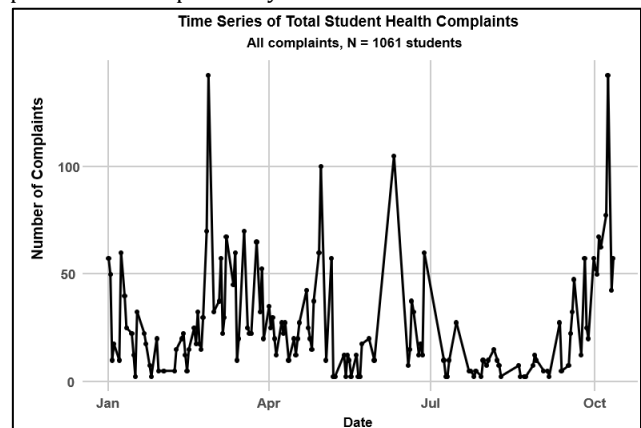


Figure 5: Time Series Analysis of Health Complaints

Discussion

University students in higher education are at an increased risk of experiencing acute discomfort, which can yield significant negative consequences (16). This heightened concern for the mental well-being of university students is supported by the abundance of literature addressing their mental health and associated risk factors (17). It's clear that there is a strong association between mental health and physical well-being (18). Despite the limited research on the physical health of students, it is anticipated they could face important health issues. Keeping in view the academic culture of Pakistan, students encounter high academic competition, financial stress, future uncertainty, societal and parental pressure to excel, and a lack of on-campus career counseling and mental health services (19). Thus, studying health trends is of utmost importance.

Throughout the ten-month duration of this study, 1061 students were reported with a variety of health complaints. The findings revealed that Generalized Body Aches emerged as the predominant health concern, accounting for 42.5% of all reported cases. This prevalence could potentially be attributed to the suboptimal posture adopted by university students while utilizing computers, laptops, or tablets for academic purposes, which in turn contributes to general body discomfort (20). The other most prevalent diseases were upper respiratory tract infections (URTIs), Abdominal Pain/Diarrhea, Fever, Flu, Toothache, Allergy (sneezing, nasal irritation, and watery eyes) Nausea/Vomiting, Injuries and Backaches.

Gender-based analysis of our study has unveiled that the male students reported a higher frequency of health complaints (59.4%) in contrast to their female counterparts (40.6%). This disparity in health issues may be attributed to differences in health-related behaviors. Our findings align with a separate study conducted at Malakand University, where it was observed that female students displayed a higher prevalence of health-promoting behaviors compared to their male peers (21). It is noteworthy that the socio-demographic profiles between the two universities, namely Malakand University and the University of Haripur, exhibit relative similarity, further reinforcing the significance of these gender-related distinctions in health outcomes.

Semester-based health trends have shown that the students of second semester faced 24.6% of the total health problems. Generalized Body Aches was most prevalent in the first year of university (1st and 2nd semesters) because of the fear of failing, academic workload, adjustment to a new setting can make this a very stressful time for new students (22). Social support during the first year of university is consistently associated with improved well-being. Students may encounter various challenges in adapting to the new environment, potentially leading to adverse effects on their overall health (23). The department of information technology (IT) reported the highest number of health issues among students, with a total of 233 instances (21% of the total number of cases). Another study,

which aimed to examine department-specific patterns in health complaints, found that IT students, who are frequently exposed to technology and electronic devices, are more prone to experiencing adverse health effects, including physical problems, body aches, and anxiety (24).

Time series analysis depicted that period from January to April 2019 exhibited the highest number of health issues, with March accounting for the greatest percentage of health-related complaints at 21%. The increased frequency of health issues in this period may be linked to the influx of new students transitioning from college to university, a period that has been recognized as a potential source of stress for students in research conducted in various countries (25). Students may feel more stress in the first year of university than they will during the rest of their education (26). Moreover, as reported by the studies academic milestones such as exams can lead to increased stress levels among students affecting their overall health (27). Given this association, it is evident that a higher frequency of health issues was observed from January to April when students are actively engaged in examinations.

Conclusion

In summary, our research emphasizes the critical need to address the health concerns of university students within the specific context of higher education in Pakistan. The prevalence of health issues in undergraduate students highlights the importance of tailored strategies and support systems. To enhance student well-being, universities and policymakers in Pakistan should prioritize health services, health education, regular check-ups, career counseling, and physical activity promotion. Additionally, for future research, longitudinal studies can offer valuable insights into the evolving health trends of university students, the effectiveness of interventions, and continuous improvements in fostering a healthier learning environment.

Recommendations:

Medical facilities must be active on a university campus with enough staff to cater according to the number of students enrolled. Additionally, preventive measures for common problems like body aches and sore throat must be communicated effectively to the students for decreasing disease burden through measures like printed material and lectures or seminars.

Active surveillance system should be implemented to effectively monitor and control symptomatic and asymptomatic health disparities among university students. For instance, this can require designated personnel to visit the classrooms and conduct in-class monitoring to assess students' health and collect relevant data. Such surveillance strategies will allow for timely management and identification of suspected cases and will help in implementing early appropriate public health measures and actions.

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Ethical Approval:

This study was approved by the Research Ethics/Bioethics Committee of the University of Haripur, Haripur, Pakistan Ref. No. UOH/DASR/2023/1529 Date: 11-09-2023

Data Availability: The data supporting the study findings are available on request from the corresponding author. It is not publicly available due to privacy or ethical restrictions.

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Conflict of interest: None declared.

Authors' Contribution:

EA: Conceptualization, study design, data analysis and write-up

AU: Literature review, data analysis, interpretation, and proofreading

SHA: Write-up, analysis, interpretation, and Correspondence

SAZ: Interpretation and proofreading

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