

Determinants of the Status of Health, Nutrition Profile, and Leisure Activities of Students of Panjab University, Chandigarh

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ABSTRACT

Aim and objective: To ascertain the determinants of health, nutrition profile differentials, and leisure activities of students of Panjab University (PU).

Materials and methods: This cross-sectional study was conducted in PU, Chandigarh, from January 2018 to April 2018 among undergraduate and postgraduate students. Respondents consisted of 300 students (150 hostellers, 150 day-scholars) from medical, non-medical, and arts and commerce streams. The health-promoting lifestyle profile (HPLP) tool was used for collecting the data.

Results: The mean value of the HPLP score was 133.95 (SD \pm 14.05). Those pupils who had better HPLP scores had good nutrition profiles. A higher HPLP score of the participants was associated with more indulgence in leisure activities. Almost two-thirds of the pupils who had a good nutrition profile had normal body mass index (BMI). The majority of the students, who indulged more in leisure activities, also had better nutritional status.

Conclusion: Almost two-thirds of the day-scholars had a good nutrition profile and they were able to keep their health at good levels. Half of the hostellers had poor nutrition profiles; they were not taking care of their health. Students with higher HPLP scores had a better nutritional profile. They were found more energetic and more active in leisure activities. Thus, promotion of the status of health, nutrition profile, and leisure time activities of university students will enhance their quality of life.

Keywords: Body mass index, Health, Health-promoting lifestyle profile, Leisure activities, Nutrition, University students.

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INTRODUCTION

In the present society, in view of the unhealthy situations to which people are exposed in their lives, there is a constant need to be on guard to protect and maintain health. Non-communicable diseases (NCDs) like obesity, diabetes, blood pressure, heart disease, cancer, and stroke are on the rise at an alarming rate in both developed and developing countries, including India.¹

According to health field theory, our health is mainly affected by four factors, i.e., biology (genetics), healthcare system, lifestyle, and environment. Except for lifestyle, all other factors are not under the direct control of an individual.² Lifestyle includes our day-to-day activities, i.e., our eating habits, activities, and our social interactions, e.g., tobacco use, excessive alcohol consumption, unhealthy dietary habits, physical inactivity, sedentary life and lack of exercise, increasing use of computer/TV/mobile phones, etc.³ Our habits can be health-promoting (washing hands, increased physical activities, and balanced diet) or health destructive (smoking, alcohol consumption).⁴ Thus, our lifestyle has a significant bearing on our health.

Young people are at a dynamic transition period of growth and development that bridges childhood to adulthood. It is characterized by rapid, interrelated changes of body, mind, and social relationships. At this stage of physical, psychological, and sexual development, young people gradually assume responsibility for their own health. The demands on young people are new and unprecedented; their parents could not have predicted many of the pressures they face. How we help adolescents meet these demands and equip them with the kind of education, skills, and outlook they will need in a changing environment will depend on how well we understand their world. Therefore, helping adolescents establish

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healthy lifestyles and avoid developing health risk behaviors is crucial. This should be started before these behaviors are firmly established.¹

It is well documented that behaviors developed during this period influence health in adulthood. Several health-compromising behaviors (e.g., smoking, alcohol), as well as health-enhancing behaviors (e.g., physical exercise, nutrition), are adopted in adolescence, and they often persist into adulthood. The WHO estimates that 70% of premature deaths among adults are due to behavior (smoking, illicit drug use, reckless driving) initiated during adolescence.¹

Individuals who engage in a health-promoting lifestyle remain independent and can engage in meaningful activities that also

contribute to a positive quality of life. Their health practices and psychological well-being adopted at an early stage not only impact their immediate health status but also have long-term health consequences. Many young people engage in a wide range of unhealthy habits (such as inadequate nutrition intake, rest, and exercise) and risk behaviors (such as tobacco and drug use) that lead to adverse health outcomes. Many of these are associated with serious health problems such as cardiac or respiratory disease, cancer, complicated pregnancies, and psychological disorders in later life.¹

To know the effect of the lifestyle of individual on their health status, Walker et al. developed a tool to measure the extent to which people indulge in health-promoting lifestyle, viz. health-promoting lifestyle profile tool (HPLP tool). Its revised version, the HPLP-II instrument has categorized health-promoting behaviors into six health-promoting lifestyle subscales: (1) health responsibility (HR), (2) spiritual growth (SG), (3) physical activity (PA), (4) interpersonal relations (IR), (5) nutrition (N), and (6) stress management (SM).² In India, this tool has been used only sparingly.^{1,5,6} Much of the focus has been on locus of control, self-esteem, loneliness, hardness, resilience, and personality type.⁶ In view of more importance now being given to the domains of health promotion (HP), there is a need to undertake such evaluation of HPLP in various settings, e.g., teaching institutions.

The present study was therefore conducted to ascertain the determinants of health, nutrition profile differentials, and leisure activities of students of Panjab University (PU), Chandigarh.

MATERIALS AND METHODS

This cross-sectional study was conducted in PU, Chandigarh, from January 2018 to April 2018 among undergraduate and postgraduate students. An interview schedule was developed. A pretested/pilot-tested HPLP-II tool was also used.

Sampling Techniques

There were eight boy hostels and nine girl hostels on the PU campus. Out of eight boy hostels, hostel numbers five and eight were randomly chosen. First of all, a list of hostellers and day-scholar students was made. These were also equally divided into boys and girls. Further, these are stratified into undergraduate and postgraduate students. A total of 300 students were taken. Of them, 150 were hostellers and 150 were day-scholars; 100 students from each stream, i.e., medical, non-medical, and arts/commerce; 78 boys were selected, 39 from each selected hostel. Out of 9 girl hostels, hostel numbers 5 and 8 were randomly chosen; 72 girls were selected (36 from each selected hostel).

For day-scholars, data collection was done at various places like the Student Center and canteens of different departments and also in the classrooms when they were available. Again 150 students were taken (75 girls and 75 boys). Further, they were classified into under-graduation and post-graduation levels of different streams. Students were interviewed as and when available.

Its first section was related to demographic variables and regarding their health status, past medical history, and family history. Students were also asked to report their weight and height to calculate their body mass index (BMI) weight divided by the height squared (kg/m^2). An obesity classification system was used to categorize participants according to their BMI: underweight (<18); normal weight (18–25); overweight (>25).

Health-promoting lifestyle profile-II questionnaires were filled by the student themselves. The second section of the HPLP-II instrument was on HP attitudes and health practices. A 4-point response scale consisting of 1 representing “never”, 2 representing “sometimes”, 3 representing “often”, and 4 representing “routinely” was used to determine the frequency of each behavior.

Health-promoting lifestyle profile instrument provides a multidimensional assessment of health-promoting behaviors and psychosocial well-being of individuals. It measures health-promoting lifestyles by focusing on self-initiated actions and perceptions that serve to maintain or enhance the level of wellness, self-actualization, and fulfillment of the individual. It has been used extensively in HP research. It was reported to have sufficient validity and reliability for use among various populations.⁷

Sample size formula:

$$n = \left(t^2 \times PQ \right) \div d^2$$

Where, $t = 1.96$ (value of t at 95% confidence level)

$P =$ reported prevalence in earlier studies⁸

$Q = 1 - P$

$d =$ margin of error

Sample size calculation:

$P = 20\% = 0.20$, $t^2 = (1.96)^2 = 3.84$

$Q = 1 - 0.20 = 0.80$

$n = (3.84 \times 0.20 \times 0.80) \div (0.05 \times 0.05)$

$n = 245$

55 respondents were selected extra on the account of non-response.

Data analysis was done with the help of MS Excel and SPSS. A comparison between hosteller and day-scholar students for health status, nutritional profile, and leisure activities was done. In the analysis of health status, a HPLP was used. The total score for overall HPLP was calculated and analyzed. Findings were considered statistically significant if the p value was ≤ 0.05 .

Prior consent was taken from the participant on an individual basis. Respondents were told about the purpose of the study, about components of the questionnaire before collecting data. They were assured that all the personnel information would be kept confidential and used for only research purposes. This study was conducted at PU and ethical clearance was obtained from the institutional research committee.

RESULTS

Overall, 300 students of PU were studied. The mean value of the HPLP score was 133.95. The standard deviation of the HPLP score was 14.05. There was a significant relationship between the HPLP and the nutrition profile of scholars of PU. There were 60% pupils who had better HPLP score had good nutrition profile and (40%) of the students had poor HPLP score (3.3% poor + 37.7% average) (Table 1; $\chi^2 = 70$, $p < 0.001$).

Table 2 ($\chi^2 = 84$, $p < 0.001$) reflects the significant relationship between leisure activities done by pupils and HPLP. The students (56%) who had poor or average leisure activities had poor HPLP scores. A higher HPLP score of the participants (60%) was associated with more indulgence in leisure activities.

Almost two-thirds (61%) of the pupils who had good nutrition profiles also had normal BMI. Most (78%) of the students had normal BMI; 15% were overweight and 6% were underweight (Table 3; $\chi^2 = 12.77$ and $p < 0.05$).

Table 1: Association of health-promoting lifestyle profile with nutrition profile of students

Nutrition	HPLP score				Total
	Poor (50–110)	Average (111–130)	Good (131–150)	Very good (151+)	
Poor (8–16)	4 (16%) (40%)	13 (52%) (11.5%)	8 (32%) (5.7%)	0	25 (8.3%)
Average (17–20)	4 (4%) (40%)	55 (55%) (48.7%)	39 (39%) (27.9%)	2 (2%) (5.4%)	100 (33.3%)
Good (21–24)	2 (1.5%) (20%)	44 (33.8%) (38.9%)	66 (50.8%) (47.1%)	18 (13.8%) (48.6%)	130 (43.3%)
Very good (25–32)	0	1 (2.2%) (0.9%)	27 (60%) (19.3%)	17 (37.8) (45.9%)	45 (15%)
Total	10 (3.3%)	113 (37.7%)	140 (46.7%)	37 (12.3%)	300

$\chi^2 = 70$ and $p < 0.001$

Table 2: Association of leisure activities and health-promoting lifestyle profile of students of Panjab university

Leisure activities	HPLP score				Total
	Poor (50–110)	Average (111–130)	Good (131–150)	Very good (151+)	
Poor (7–12)	4 (13.3%) (40 %)	17 (56.7%) (15%)	9 (30%) (6.4%)	0	30 (10%)
Average (13–17)	5 (3.6%) (50%)	68 (49.6%) (60.2%)	57 (41.6%) (40.7%)	7 (5.1%) (18.9%)	137 (45.7%)
Good (18–22)	1 (1.1%) (10%)	26 (27.7%) (23%)	56 (59.6%) (40%)	11 (11.7%) (29.7%)	94 (31.3%)
Very good (23–28)	0	2 (5.1%) (1.8%)	18 (46.2%) (12.9%)	19 (48.7%) (51.4%)	39 (13%)
Total	10 (3.3%)	113 (37.7%)	140 (46.7%)	37 (12.3%)	300

$\chi^2 = 84$ and $p < 0.001$

Table 3: Association of nutrition profile and body mass index (BMI) of Panjab university students

BMI	Nutrition profile				Total
	Poor (8–16)	Average (17–20)	Good (21–24)	Very good (25–32)	
Thin (<18)	4 (20%) (16%)	6 (30%) (6%)	9 (45%) (6.9%)	1 (5%) (2.2%)	20 (6.7%)
Normal (18–25)	16 (6.9%) (64%)	75 (32.2%) (75%)	109 (46.8%) (83.8%)	33 (14.2%) (73.3%)	233 (77.7%)
Overweight (>25)	5 (10.6%) (20%)	19 (40.4%) (19%)	12 (25.5%) (9.2%)	11 (23.4%) (24.4%)	47 (15.7%)
Total	25 (8.3%)	100 (33.3%)	130 (43.3%)	45 (15%)	300

$\chi^2 = 12.77$ and $p < 0.05$

Table 4: Relationship between leisure activities and nutrition profile among students of Panjab university

Nutrition	Leisure activities				Total
	Poor (7–12)	Average (13–17)	Good (18–22)	Very good (23–28)	
Poor (8–16)	4 (16%) (13.3%)	13 (52%) (9.5%)	7 (28%) (7.4%)	1 (4%) (2.6%)	25 (8.3%)
Average (17–20)	14 (14%) (46.7%)	44 (44%) (32.1%)	34 (34%) (36.2%)	8 (8%) (20.5%)	100 (33.3%)
Good (21–24)	9 (6.9%) (30%)	67 (51.5%) (48.9%)	33 (25.4%) (35.1%)	21 (16.2%) (53.8%)	130 (43.3%)
Very good (25–32)	3 (6.7%) (10%)	13 (28.9%) (9.5%)	20 (44.4%) (21.3%)	9 (20%) (23.1%)	45 (15%)
Total	30 (10%)	143 (47.7%)	86 (28.7%)	41 (13.7%)	300

$\chi^2 = 18.69$ and $p < 0.05$

A significant relationship existed between the nutrition profile and leisure activities of University students. The majority of the students (60%), who indulged more in leisure activities, also had better nutritional status (Table 4; $\chi^2 = 18.69$ and $p < 0.05$).

DISCUSSION

College life is a transitional period, offering opportunities for cementing healthy lifestyle behaviors in students. However, most health professionals do not view this relatively healthy stage of life as a priority for HP efforts or for strengthening the positive attitude.⁶ Integrated HP focuses on achieving equity in health. A major aspect of the work of integrated HP is to provide the opportunities and resources that enable people to increase control over and improve their health. This includes developing appropriate health resources

in the community and helping people to increase their health knowledge and skills, to identify the determinants of their own health, to identify actions by themselves and others, including those in power, that could increase health, and to demand and use health resources in the community.⁵

Globally, HP is receiving increasing attention regarding the prominent role it plays in healthcare. The HP component of various health programs is implemented in a poor fashion, which needs to be strengthened.⁹ Health-promoting behaviors and psychosocial well-being are important determinants of health status and quality of life. Health-promoting activities seek to strengthen the host through various approaches in the form of health education, lifestyle modification, behavior change, environment modification, and nutrition intervention. Among these, lifestyle modification

was highlighted as a major strategy for the prevention of non-communicable diseases during the late 20th century.⁶ Lifestyle is the way a person lives. This includes patterns of social relations, consumption, entertainment, and dress. The term lifestyle also reflects an individual's habits, attitudes, beliefs, and, essentially, the way the person is perceived by himself/herself and, at times, also how he/she is perceived by others.² Some researchers have reported that boarding school experiences result in many problems of which most prominent is an emotional disorder.¹⁰

Health-promoting lifestyles are viewed as a multi-dimensional pattern of self-initiated actions and perceptions that serve to maintain or enhance the level of wellness, self-actualization, and fulfillment of the individual. Six domains of the HPLP-II tool includes individual nutrition, PA, SM, interpersonal relationship, psychological wellness, and HR.^{11,12} Many studies conducted in the United States (US) and European countries have evaluated the health-promoting behaviors of university students particularly their PA and eating habits or diet.¹¹

Most of the students in our study having good nutrition also had normal (18–25) BMI. A very few were underweight and some of them were overweight (one-sixth). This indicates the role of good nutrition in our life. One of the studies on the lifestyle of North Indian college students in Chandigarh had shown similar results. Overall, it was observed that they had a reasonably healthy lifestyle. About one-fourth of the students were overweight. However, in a study conducted by Raj et al., more boys (72.5%) were in the overweight category.¹

Hostel students in our study were not able to maintain their dietary habits and healthy lifestyle practices. Similarly, a study conducted by Bronfenbrenner (2007) reported that boarders bear a high risk of adopting unhealthy habits.¹³ This indicates that hostel life was not conducive to good nutrition. Another study revealed moderate to poor dietary habits (89.9%) in hostellers as regards the number of meals per day, breakfast, fast foods, soft drinks, and fruit and vegetable consumption.⁷ Majority (75%) of the day-scholar participants had very good health scores as well as had good nutritional status. It implies that living with family ensures good nutrition as well as health. Only 58% of hostellers were good in their nutritional status. Hostellers were reported to be more interested in pizza, burgers, and hot dog-like foods. Hostellers usually missed their breakfast due to the late-night studies, gossip with friends, late-night movies late-night parties, etc. A multisectoral approach for health is very crucial, especially for the prevention and control of NCDs. A national multisectoral action plan for the prevention and control of NCDs can be used for this purpose.⁹

Nutrition has a direct impact on our health. It is also true that good nutrition leads to a good health profile of an individual. A good nutrition profile gives the energy and capability to fight the disease. Good nutrition gave energy and makes the person active. Participants with a higher HPLP score (60%) had good nutritional status and were more interested in playing outdoor games and other leisure activities. They were fit and energetic to do so. Students with low HPLP scores (40%) had low nutritional status were less energetic, no active participation in outdoor games and other physical activities. With an increase in age, there was a decrease in leisure activities of students. About half (45.7%) of the respondents took part in moderate leisure activities. Comparable results were seen in Singh and Singh study (2017).¹⁴

The setting-based approach of HP is one of the approaches, which promotes the establishment of healthy settings such as healthy schools, workplaces, hospitals, villages, cities, and communities. Lifestyle intervention in school settings through an ICMR project is effective in enhancing the HPLP score of Chandigarh college students.⁹

It has also been established that promoting healthy lifestyle choices and preventing risky behavior during student life will go a long way to yield positive health outcomes in the future.¹⁵

CONCLUSION

Most (60%) of the students had a good nutrition profile and were able to keep their health at good levels. Half of the hostellers (50%) had poor nutrition profiles. They were casual about their health. The majority of the students (60%) with higher HPLP scores had a better nutritional profile and were found more energetic and more active in leisure activities.

LIMITATION

- Self-reported questionnaire was used to gather information from students. This might have created bias among respondents. They might have given a reply which is socially desirable, not which they actually follow.

STRENGTH

- This was the first study using the HPLP tool that included students from multiple disciplines across various age groups.
- A standardized approach was used for collecting the data for both hosteller and day-scholar students.

RECOMMENDATIONS

- Healthy nutrition choices should be available in universities as a maximum number of participants live in faraway places.
- Students should be encouraged in sports and enhance their PA.
- Students should be sensitizing to the harmful effects of skipping a meal.
- Students should be encouraged to seek routine medical and dental health check-ups.

REFERENCES

1. Raj S, Senjam SS, Singh A. Assessment of health-promoting behavior and lifestyle of adolescents of a north Indian city. *Int J Prevent Med* 2013;4(10):1189–1193.
2. Kojima A, Ekuni D, Mizutani S, et al. Relationships between self-rated oral health, subjective symptoms, oral health behavior and clinical conditions in Japanese University students: a cross-sectional survey at Okayama University. *BMC Oral Health* 2013;13(1):62. DOI: 10.1186/1472-6831-13-62.
3. Thakur JS, Jaswal N, Grover A. Is focus on prevention missing in national health programs? A situation analysis of IEC/BCC/Health promotion activities in a district setting of Punjab and Haryana. *Indian J Community Med* 2017;42(1):30–36. DOI: 10.4103/0970-0218.199795.
4. Koen N, Du Preez I. *Metabolomics and personalized medicine*. In: *Advances in protein chemistry and structural biology*, vol. 102. Academic Press; 2016. pp. 53–78.

5. Thakur JS, Jaswal N, Kaur R, et al. Development of Integrated Health Promotion Manual on National Health Programs in India. *J Health Commun* 2016;1(04):4. DOI: 10.4172/2472-1654.100029.
6. Suraj S, Singh A. Study of sense of coherence health promoting behavior in north Indian students. *Indian J Med Res* 2011;134(5):645–652. DOI: 10.4103/0971-5916.90989.
7. Walker SN, Sechrist KR, Pender NJ. The health-promoting lifestyle profile: development and psychometric characteristics. *Nurs Res* 1987;36(2):76–81. DOI: 10.1097/00006199-198703000-00002.
8. Evangeline Mary A, Seenivasan P, Shibiyeswanth RI, et al. A study to assess the prevalence of behavioral risk factors for lifestyle diseases among late adolescents in Chennai, Tamil Nadu. *Int J Commun Med Pub Health* 2017;4(4):1260–1266.
9. Thakur JS, Jaswal N, Grover A, et al. Effectiveness of district health promotion model (Hoshiarpur Ambala model): an implementation experience from two districts from Northern part of India. *Int J Noncommuni Dis* 2016;1(3):122–130. DOI: 10.4103/2468-8827.198584.
10. Partridge S. Boarding school syndrome. *Br J Psychother* 2012;28(3): 129–131. DOI: 10.1111/j.1752-0118.2012.01313.x.
11. Almutairi KM, Alonazi WB, Vinluan JM, et al. Health promoting lifestyle of university students in Saudi Arabia: a cross-sectional assessment. *BMC Public Health*, 2018;18(1):1093. DOI: 10.1186/s12889-018-5999-z.
12. Walker S, Sechrist K, Pender N, (2011). Health Promotion Model - Instruments to Measure Health Promoting Lifestyle: Health-Promoting Lifestyle Profile [HPLP II] (Adult Version).
13. Perveen S, Kazmi S. Personality dynamics of boarders and day scholars who belong to madrassah and public school. *Acad Res Int* 2011;1:157–172.
14. Singh H, Singh S. Prevalence, patterns and associated factors of physical activity in Indian University students. *Eur J Phys Educat Sport Sci* 2017(3):76–87. DOI: 10.1177/1479972316687207.
15. Goel S. Comparison of health promoting lifestyle of undergraduate students from two diverse cultures of India. *Healthline J* 2016;7(1): 37–43.