**Original Article**

# Factors Affecting Healthy Lifestyle among Medical Students at Rawalpindi Medical University: A Cross-Sectional Study

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## Abstract

**Background:** Students are more likely to engage in physical inactivity, stress, and poor dietary habits, and are known to negatively affect person's well-being. To assess the health-promoting lifestyle behaviors of students at a Health University in Rawalpindi, Pakistan., and to identify key domains influencing their overall well-being.

**Objectives:** To assess the health-promoting lifestyle behaviours of students at a Health University in Rawalpindi, Pakistan, and to identify key domains influencing their overall well-being.

**Materials and Methods:** A total of 375 students participated in this analytical cross-sectional study. Data gathering was conducted at Rawalpindi Medical University. Data was collected using a structured, self-administered questionnaire. Descriptive statistics involved frequencies, percentages, means and standard deviations, while inferential statistics involved independent samples t-test for gender wise comparison and one way ANOVA for year of study wise comparison.

**Results:** There were a total of 66% females and 33% males in the study. 74% of the participants were of normal weight and 7.9% were overweight. Data analysis revealed a significant association of gender and year of study with some of the components of healthy lifestyle practices health responsibility, physical activity, nutrition, spiritual growth, Interpersonal relationship, stress management assessed by questionnaire.

**Conclusion:** The study concludes that unhealthy behaviors and attitudes are prevalent among medical students. Majority have health risky eating habits and poor physical activity levels. This highlights the importance of medical universities as settings for imposing health improvement programs.

**Keywords:** Health Promotion, Lifestyle, Health Behavior, Students, Preventive Health Services, Self Care, Pakistan, Developing Countries.

## Introduction

Healthy lifestyle is one the major ways for enhancing health. Numerous factors play a role in encouraging people to adopt healthy lifestyle. Opinions and feelings of a person are considered as some of the major barriers, which prevent a person from adopting healthy lifestyle.[1] Health related practices are formed during childhood and they strengthen in adolescence. They immensely effect human health in later life.[2] Socioeconomic factors, education level, family, friends, age, gender and mutual relationships all have an influence on a person's lifestyle choice.[3]

Some of the major factors that influence the phenomenon of healthy lifestyle are an individual's health responsibility, nutrition, stress management, inter-personal relationships, physical activity and spiritual beliefs.[4] People of different age and different country have a different understanding and perception of healthy lifestyle practices. Millions of people in the world follow unhealthy practices and therefore experience deranged health and death.[5]

Research conducted in Iran in 2017 on youth, related to factors affecting healthy lifestyle, showed that although the majority of participants agreed with the importance of healthy lifestyle practices, but they lacked motivation and encouragement needed for it and educational pressure further demotivated them.[6] A study conducted in Saudi Arabia in 2018, found that majority of students didn't attend health educational programs. Gender, year of study, family structure and college type were major factors that influenced healthy lifestyle practices among students.[7]

A study done in China in 2022, showed that people who had healthy dietary habits, healthy weight, regular physical activity and male gender, had better health outcomes as compared to other people.[8] A study had been conducted to evaluate the lifestyle of medical students in Lahore, Pakistan in 2019, which revealed that second, third and fourth year MBBS students had unhealthy, healthy and fairly healthy lifestyle respectively.

University students and particularly those in medical universities, are the most vulnerable population to indulging in health risky behaviors, therefore, we used medical students to conduct this study.[9] The purpose of this study was to assess the healthy lifestyle practices among medical students of Rawalpindi Medical University, by using HPLP II (Health Promoting Lifestyle Practices) and to find its association with gender and year of study.

## Materials and Methods

An analytical cross-sectional study, using quota sampling with a sample size of 375 calculated by using WHO calculator with a confidence interval of 95%, margin of error of 5% conducted at Rawalpindi Medical University.[3] Of the total 375 responses, 75 each were collected from each 5 years of medical school. Quota was applied to each year of study, 33% males and 66% females were included based on the population. This study was done over 6 months. All MBBS medical students from first to final year were included except those with any physical disability.

Questionnaire consisted of demographics (name, age, sex, gender, height, weight, BMI,

residence, parents' education, father occupation). Weight and height were also acquired to assess each student's body mass index (BMI) using the equation of body weight divided by the square of the student's height (kg/m2). Based on the BMI, students were classified as underweight (<18.5), normal (18.5–24.9), or overweight (>25).

To analyze health adopting attitudes among medical students, Health Promoting Lifestyle Practices (HPLP) II questionnaire was used, containing 52 items across 6 subscales (Health Responsibility, Physical Activity, Nutrition, Spiritual Growth, Interpersonal Relations, Stress Management). It is used to measure health-promoting lifestyle practices. A score for overall health-promoting lifestyle is obtained by calculating a mean of the individual's responses to all 52 items; six subscale scores are obtained similarly by calculating a mean of the responses to subscale items.

A Likert-type scale was used to measure each behavior, with ranges of never (1), sometimes (2), frequently (3), and regularly (4). The total score of the HPLP II ranges from 52 to 208 and is measured by the mean score of the responses to all 52 HPLP items. High scores in every subscale mean more frequent health-promoting behaviors. SPSS version 27 was used to analyze data. Categorical demographic variables were summarized in the form of frequencies and percentages. Continuous variables like HPLP II total and subscale scores were described in the form of means, standard deviations and ranges, given the normal distribution of data as checked by Kolmogorov-Smirnov test. In bivariate analysis, for gender wise comparison of HPLP II scores, independent samples t test was applied and for comparison with year of study one way ANOVA was applied.

## Results

A total of 375 medical students were enrolled in study. 66% females and 33% males were enrolled from all 5 years of medical school. Regarding residence, 86.9% students belong to urban areas, 88% to rural, 4.2% to periurban areas. With reference to parents' education, 44% have done post-graduation 36.8% graduation 10.9% intermediate (Table 1)

**Table 1** *Sociodemographic Factors*

|  | Students (N) | Students (%) |
|---|---|---|
| **Year of Study** | | |
| 1st Year | 75 | 20 |
| 2nd Year | 75 | 20 |
| 3rd Year | 75 | 20 |
| 4th Year | 75 | 20 |
| Final Year | 75 | 20 |
| **Gender** | | |
| Male | 125 | 33.3 |
| Female | 250 | 66.6 |
| **Residence** | | |

| | | |
|---|---|---|
| Urban | 326 | 86.9 |
| Rural | 33 | 8.8 |
| Peri urban | 16 | 4.2 |
| **Education of Parents** | | |
| Primary | 2 | 0.5 |
| Middle | 4 | 1.1 |
| Matric | 25 | 6.7 |
| Intermediate | 41 | 10.9 |
| Graduation | 138 | 36.8 |
| Postgraduation | 165 | 44 |

*Note*. Data presented as numbers and frequencies (percentages)

The ages ranged from 18-26 years, with a mean age of 21.58±2.35 years. The mean BMI was calculated to be 24.46±3.26 (Table 2). Among them, <16.8% were underweight, 74.9% had normal BMI, while 8% were overweight.

**Table 2** *Sociodemographic Factors*

| | Mean | Standard Deviation | Minimum Value | Maximum Value |
|---|---|---|---|---|
| Age (Year) | 21.58 | 2.35 | 18 | 26 |
| Weight (Kg) | 55.84 | 9.5 | 45 | 80 |
| Height (cm) | 163.65 | 8.13 | 155 | 185 |
| BMI (kg/cm^2) | 24.46 | 3.26 | 18 | 30 |

*Note.* Data presented as mean, Standard deviation, and minimum and maximum Values (Range).

The mean HPLP II total scale score was 131.67±29.14 (range=59-202), and the highest mean in the individual subscales was 24.88±4.98 for spiritual growth and the lowest was 18.76±4.96 for physical activity (Table-III). The HPLP II total mean score was 131.67±29.14 (range=59-202), and the highest mean in the subscales was 24.88±4.98 for spiritual growth and the lowest was 18.76±4.96 for physical activity. Females showed higher HPLP II score than that of male. With regard to subscale, Males showed better score only in nutrition domain. While females exhibited more health promoting behaviors in all other subscales like health responsibility, interpersonal relations, spiritual growth, physical activity, and stress management.

**Table 3** *Students' HPLP II Scores for Six Subscales*

| | Mean | Standard deviation | Minimum Value | Maximum Value | Possible Mini and Max Values |
|---|---|---|---|---|---|
| Health Responsibility | 21.58 | 5.17 | 9 | 35 | 9-36 |
| Physical Activity | 18.76 | 4.96 | 8 | 30 | 8-32 |

| | | | | | |
|---|---|---|---|---|---|
| Nutrition | 21.79 | 4.51 | 9 | 35 | 9-36 |
| Spiritual Growth | 24.88 | 4.98 | 13 | 36 | 9-36 |
| Interpersonal Relationships | 24.50 | 5.27 | 10 | 36 | 9-36 |
| Stress Management | 20.14 | 4.22 | 10 | 30 | 8-32 |
| **Total** | 131.67 | 29.14 | 59 | 202 | 52-208 |

*Note.* Data presented as mean, standard deviation, and minimum and maximum values.

One way ANOVA results revealed significant differences in the means scores of all HPLP dimensions ($p<0.05$) across the years of study, except for the interpersonal relationships domain, as shown in Table 4

**Table 4** *Year Wise Comparison of Mean Score of HPLP Dimensions and Total HPLP Score.*

| Year of Study | Health Responsibility | Physical Activity | Nutrition | Spiritual Growth | Interpersonal Relationships | Stress Management | Total HPLP II Score |
|---|---|---|---|---|---|---|---|
| 1st Year | 19.08±6.52 | 18.72±5.04 | 21.24±3.96 | 26.82±4.59 | 25.11±4.95 | 21.62±3.68 | 132.59 ±28.74 |
| 2nd Year | 20.7±6.39 | 19.12±4.48 | 22.14±4.23 | 25.65±4.3 | 25.02±5.31 | 19.84±4.32 | 132.47 ±29.03 |
| 3rd Year | 21.15±6.68 | 18±4.88 | 21.42±3.96 | 25.02±5.31 | 24.4±4.5 | 20.48±3.76 | 130.47 ±29.09 |
| 4th Year | 18.72±5.78 | 16.64±4.72 | 20.61±4.95 | 23.13±5.22 | 23.04±4.86 | 18.24±4.16 | 117.38 ±29.69 |
| Final Year | 23.13±7.41 | 21.2±4.4 | 23.31±4.77 | 23.58±4.59 | 24.66±6.21 | 20.4±4.4 | 136.68 ±31.78 |
| P value | 0.000 | 0.000 | 0.003 | 0.000 | 0.103 | 0.000 | |

*Note.* Data presented as mean of Health Promoting Lifestyle Practices (HPLP) questionnaire dimensions and Total Score

Compared with gender, an independent sample t-test revealed significant differences in health responsibility (p=0.05), nutrition (p=0.01), interpersonal relationships (p=0.0001), and stress management (p=0.002). Health responsibility, interpersonal relationships, and stress management were better among females.

**Table 5** *Gender Wise Comparison of Mean Score of HPLP Dimensions and Total HPLP Score.*

| Gender | Health responsibility | Physical activity | Nutrition | Spiritual growth | Interpersonal relationships | Stress management | Total HPLP II Score |
|---|---|---|---|---|---|---|---|
| Male | 20.79±5.4 | 18.64±5.04 | 22.14±4.41 | 24.3±5.22 | 23.04±5.4 | 19.2±4.48 | 128.11±29.95 |
| Female | 21.87±4.86 | 18.88±4.72 | 20.88±4.5 | 25.11±4.86 | 25.65±5.04 | 20.56±3.92 | 132.93±27.9 |
| P value | 0.05 | 0.65 | 0.01 | 0.138 | 0.0001 | 0.002 | |

*Note.* Data presented as mean of Health Promoting Lifestyle Practices (HPLP) questionnaire dimensions and Total Score.

## Discussion

The purpose of this study was to assess the factors affecting the attitude and practices of healthy aging among the medical students of Rawalpindi Medical University. Numerous factors, such as lifestyle decisions, environmental influences, and medical procedures. In order to encourage healthy behaviors and lifestyle modifications among the students, it is essential to evaluate the effect of these variables on their knowledge, attitudes, and practices (KAP).

In our study, various factors including age, year of study, health responsibility, and nutrition were seen to have a significant impact on healthy aging practices. The highest scores were recorded for two factors: interpersonal relationships and spiritual growth. The lowest scores were found for physical activity. Several studies conducted among students in Saudi Arabia and Turkey showed similar results.[10, 11]

Regarding gender, our study showed that females are more likely to have stronger interpersonal relationships and health responsibility and a higher ability to cope with stress compared to the male population, whereas males exhibited healthier nutritional consumption than females. The findings revealed varying results concerning gender as a determinant of health-promoting lifestyle. For instance, a study conducted in Jordan showed no significant differences between the two genders, but males showed better scores in physical activity.[12] Similarly, a study conducted on Japanese medical students showed that females had stronger interpersonal relationships and health responsibility, while males scored better in physical activity.[13]

The total HPLP II score was found to be highest among the final year medical students, with no observed trend across all years of study in our research. In contrast, studies conducted in Turkey and Jordan showed a notable reduction in total HPLP II scores from first through final year of medical students.[11, 14] Studies conducted in Croatia and at Mahidol University in Thailand show results consistent with ours.[15, 16] The highest mean score of final year medical students can be attributed to their increased awareness of the importance of these practices for their future professional roles, the necessity to model healthy behaviors for patients, and their better understanding of the consequences of neglecting health. Additionally, by this stage, they may have developed effective time management skills and coping strategies.

It is recommended to launch awareness campaigns among the campus by using noticeboards, posters, pamphlets and slogans. Conduction of workshops to introduce this concept among the medical students would be beneficial. It is necessary to arrange sports competitions and martial arts activities (self-defense programs) especially among females to promote women empowerment. Arranging nutrition boot camps. Recommending policy makers to make sports compulsory for at least 1 hour to inculcate healthy life practices among students. Introduction of fruits and other healthy dietary products in university cafeteria. Concept of 'My plate' in cafeteria which should include a balanced variety of food including carbohydrates, fruits, dairy (yogurt) and making it available at reasonable prices for everyone. The study's location within one specific region of Rawalpindi might limit the generalizability of the findings to the broader population. However, future research should focus on broader populations with representativeness from multiple medical colleges, and on youth in general to make the findings generalizable.

## Conclusion

Health-promoting behaviors differed by gender, especially regarding physical activity and interpersonal relationships domains. Study findings suggest the importance of planning health-promoting activities for medical students to improve their lifestyles and health but also to possibly support population health-promotion programs. Future studies should be performed in diverse settings to identify causes and shape policymaking.

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