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Impact of Lifestyle Habits on Academic Performance Among University Students – A Quantitative Analysis

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ABSTRACT

Using the Health-Promoting Lifestyle Profile II (HPLP II), this study examines the connection between academic achievement and health-promoting lifestyle practices among university students in the Chengalpattu area. 384 students participated in a standardized survey that evaluated six aspects: stress management, physical activity, diet, interpersonal connections, spiritual development, and health responsibility. ANOVA, Pearson correlation, and descriptive statistics were used to analyze the data. The findings demonstrate that overall HPLP scores and academic performance are significantly positively correlated ($r = 0.340$, $p < 0.01$), with the largest correlations found for stress management ($r = 0.310$, $p < 0.01$) and physical activity ($r = 0.290$, $p < 0.01$). Higher GPA students are more likely to participate in health-promoting activities, according to an ANOVA that found statistically significant variations in health behaviors across GPA categories ($F = 15.612$, $p < 0.001$). The study exhibits the significance of fostering a balanced lifestyle to increase academic success, suggesting that universities should integrate structured wellness programs to improve student outcomes.

Keywords: Lifestyle, HPLP, Academic performance, Students etc.,

Introduction

Lifestyle behaviors have a significant impact on overall well-being and academic achievement, especially among students. The Health-Promoting Lifestyle Profile II (HPLP II) is a comprehensive framework for evaluating a wide range of lifestyle habits, including physical activity, diet, stress management, health responsibility, spiritual development, and interpersonal connections. These characteristics all contribute to an individual's overall health by impacting cognitive function, learning capacity, and academic accomplishment (Carson et al., 2017; Cohen et al., 2003). Health-related lifestyle choices are especially important during adolescence and early adulthood, when long-term habits that affect physical and cognitive health emerge (Dehart, Sroufe, & Cooper, 2004). According to empirical research, adherence to health-promoting habits such as regular physical activity, appropriate sleep, and balanced nutrition is associated with improved cognitive capacities and scholastic achievement (Walsh et al., 2018; Stea & Torstveit, 2014). For example, research has shown that students who engage in more physical activity and structured movement have better concentration, memory recall, and problem-solving skills, which improves their academic achievement (Hillman et al., 2009; Ericsson & Karlsson, 2014). Unhealthy activities, such as smoking, sedentary lifestyles, and poor eating habits, have been associated to impaired cognitive function and poor academic performance (Cohen et al., 2003).

Furthermore, including structured health-promoting activities into educational environments has been shown to improve both physical well-being and academic performance. Longitudinal studies show that adolescents who participate in daily physical education programs have superior motor abilities and increase academic performance over time (Ericsson & Karlsson, 2014). Furthermore, adopting the 24-hour movement guidelines, which emphasize a balanced combination of sleep, physical exercise, and sedentary behavior, has been linked to improved academic performance in children and adolescents (Walsh et al., 2018). Given the strong link between lifestyle behaviors and academic outcomes, this study seeks to investigate the impact of HPLP II domains on student academic performance. By examining the links between health-promoting habits and learning effectiveness, this study hopes to add to the growing body of literature emphasizing the need of developing healthier lifestyles among students in order to maximize their educational performance.

Research Objectives

The study intends to achieve the following objectives:

1. Examine respondents' demographics depending on:

1.1 Gender.

1.2 Department.

1.3 Year Level

2. Evaluate university students' health-promoting lifestyle profiles (HPLP) in the following dimensions:

2.1 Spiritual growth.

2.2 Interpersonal interactions.

2.3 Nutrition.

2.4 Physical Activity.

2.5 Health Responsibility

2.6 Stress management.

3. Analyze the correlation between health-promoting lifestyle practices and academic performance, as evaluated by:

3.1 GPA or academic grades.

Methodology

The study was conducted with university students from the Chengalpattu area. A standardized questionnaire was distributed to the pupils as part of a longitudinal data collection strategy. The sample size (384 students) was determined using the sample size equation for proportions: n = (z2pq)/d2). We used a random sampling procedure with a confidence level of 98% and a margin of error of 5%, assuming a population proportion that gives the largest attainable sample size (p = 0.50). A total of 546 students responded to the survey, however only 384 completed the full questionnaire, which is utilized in the final analyses. The questionnaire consists of thirty one questions which includes demographic features, Health-Promoting Lifestyle Profile (HPLP II) Subscales and their academic performance.

Data Analysis and Interpretation

The data was examined using the IBM Statistical Package for the Social Sciences (SPSS), and descriptive statistics were applied to it. The respondents' demographic characteristics were analysed using percentage analysis. The mean and standard deviation were used to assess the kids' health performance. Academic achievement was rated on three scales: poor, moderate, and high. Correlation and Anova analyses were performed to investigate the association between a health-promoting lifestyle profile and academic achievement.

Table:1 Demographic features of the respondents

Variable	**Sub-scale**	**Frequency**	**Percentage**
Gender	Male	160	41.7
	Female	224	58.3
Department	Engineering	32	8.3
	Management	224	58.3
	Social Sciences	81	21.09
	Computing Sciences	47	12.2
Year Level	1St Year	64	16.7
	2nd Year	256	66.7
	3rd Year	32	8.3
	4th Year	32	8.3

Source: Data collected

The sample's demographic distribution (N = 384) provides valuable insights into the composition of respondents by gender, department, and year level. The study sample included 41.7% male (n = 160) and 58.3% female (n = 224) participants, demonstrating a higher proportion of female pupils. In terms of departmental distribution, Management has the highest proportion (58.3%, n = 224), followed by Social Sciences (21.09%, n = 81), Computing Sciences (12.2%, n = 47), and Engineering (8.3%, n = 32). This shows that students from management-related disciplines were more involved in the study, whereas engineering students were underrepresented. In terms of year level, the majority of the sample is made up of second-year students (66.7%,

n = 256), followed by first-year students (16.7%, n = 64), and third- and fourth-year students (8.3%, n = 32). This distribution reveals that the study is mostly focused on the viewpoints of students in their second year of university, with lesser involvement from upper-level students. Overall, the sample is female-dominated, primarily made up of management students, and strongly represented by second-year students, which may influence the findings due to their unique academic experiences.

Table: 2 Health Profile of the respondents based on HPLP-II

HPLP Sub-scale	**Mean**	**Standard Deviation**
Spiritual growth	2.07	0.603
Interpersonal relationships	2.42	0.623
Nutrition	2.51	0.506
Physical activity	3.08	0.516
Health responsibility	2.79	0.445
Stress management	2.71	0.444
Overall Mean	2.59	

Source: Data collected

The examination of the Health-Promoting Lifestyle Profile (HPLP) sub-scales revealed differences in students' involvement in various health-promoting behaviors. The aggregate mean score of 2.59 indicates that respondents engage in moderate health-promoting lifestyle practices. Among the six sub-scales, physical activity (M = 3.08, SD = 0.516) had the highest mean score, showing that students are more involved in physical activities than other health-related behaviors. This indicates a relatively strong desire to keep an active lifestyle. In contrast, spiritual growth (M = 2.07, SD = 0.603) had the lowest mean score, indicating that students may not emphasize spiritual well-being as much as other components of their health. Interpersonal relationships (M = 2.42, SD = 0.623) and nutrition (M = 2.51, SD = 0.506) show moderate levels of involvement, showing that students maintain good social interactions and food habits but may need to improve in these areas. Health responsibility (M = 2.79, SD = 0.445) and stress management (M = 2.71, SD = 0.444) similarly demonstrate moderate participation, indicating that while students take some responsibility for their health and use stress management measures, there is still room for improvement.
The colleges chosen for the poll use a 10.0 GPA scale, with low GPA metrics being less than or equal to 5.0, moderate GPA ranging from 5.1 to 7.9, and high GPA being greater than or equal to 8.0.

Table:3 GPA analysis of the respondents

Respondents academic performance	**Total**	
	No.of Respondents	**Percentage**
Low GPA	120	31.25%
Moderate GPA	198	51.5%
High GPA	66	17.18%
	384	100.0%

Source: Data Collected

The distribution of responses based on academic performance shows that the majority of students (51.5%) have a moderate GPA, implying that more than half of the sample maintains medium academic performance. Meanwhile, 31.25% of respondents had a low GPA, indicating a sizable proportion of kids who may need academic assistance or intervention. Only 17.18% of respondents have a high GPA, demonstrating that a small group of pupils perform academically. This distribution indicates that, while most students do moderately, there is a need for targeted initiatives to improve academic accomplishment, particularly among those with low GPAs.

Table: 4 Correlation results of health performing factors and academic performance

Variables	**Pearson Correlation**	**Sig. (2-tailed)**	**N**
Spiritual growth	0.210	.001	384
Interpersonal relationships	0.250	.000	384
Nutrition	.180	.004	384

Physical activity	.290	.000	384
Health responsibility	.220	.002	384
Stress management	.310	.000	384
Over all HPLP	.340	.000	

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Data analysis

The correlation analysis of the Health-Promoting Lifestyle Profile (HPLP) subscales and academic performance (GPA categories) demonstrates strong positive associations across all variables. The findings show that more participation in health-promoting behaviors is connected with improved academic achievement. The sub-scales of stress management ($r = 0.310$, $p < 0.01$) and physical activity ($r = 0.290$, $p < 0.01$) had the largest relationships with GPA, indicating that students who manage stress and keep an active lifestyle do better academically. Other sub-scales, such as interpersonal relationships ($r = 0.250$, $p < 0.01$) and health responsibility ($r = 0.220$, $p < 0.01$), reveal significant links, suggesting that social support and self-care contribute to academic performance. The HPLP score ($r = 0.340$, $p < 0.01$) has a substantial link with GPA, highlighting the necessity of maintaining a healthy lifestyle to improve students' academic performance.

Table:5 Anova results of Academic performance and health promoting lifestyle

Variables	**Sum of Squares**	**Df**	**Mean Square**	**F**	**Sig.**
Spiritual growth	6.210	2	3.105	5.422	.005
Interpersonal relationships	8.845	2	4.422	7.983	.001
Nutrition	4.320	2	2.160	3.925	.020
Physical activity	12.630	2	6.310	10.540	.000
Health responsibility	9.435	2	4.718	8.210	.001
Stress management	15.721	2	7.860	12.834	.000
Over all HPLP	38.450		19.225	15.612	.000

*$p < 0.05$ indicates statistical significance

Source: Data analysis

ANOVA results show significant variations in health-promoting behaviors between students with varying levels of academic performance ($p < 0.05$ for all sub-scales). Students with higher GPA scores have considerably better stress management ($F = 12.834$, $p < 0.001$), physical activity ($F = 10.540$, $p < 0.001$), and interpersonal interactions ($F = 7.983$, $p = 0.001$) than those with lower GPAs. The HPLP score ($F = 15.612$, $p < 0.001$) strongly correlates with academic achievement, highlighting the importance of maintaining a healthy lifestyle for academic success.

Conclusion

The outcomes of this study show a strong link between health-promoting lifestyle behaviors and academic achievement among university students. Higher levels of stress management, physical activity, and interpersonal interactions are related with improved academic performance. The ANOVA results show that students with high GPA scores are more likely to engage in health-conscious behaviors, emphasizing the value of a balanced lifestyle in promoting academic achievement. Given these findings, colleges should prioritize health-promotion initiatives such as scheduled physical activities, stress management programs, and nutritional recommendations to improve students' overall well-being and academic performance.

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