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Level of Health Awareness and its Relationship to Physical Activity among Students of Physical Education Colleges

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Abstract:

This study aims to examine the levels of health awareness across its six dimensions (personal, nutritional, physical, postural, environmental, and preventative) and to determine its correlational and predictive relationship to physical activity among university students. The study employed a descriptive, correlational, predictive approach with a cross -sectional design. Design) Adhering to STROBE guidelines for the preparation and reporting of observational studies, on a stratified random sample of 220 male and female students (137 males, representing 62.3%, and 83 females, representing 37.7%) distributed across the four academic levels. The developed Health Awareness Scale (42 items) and the Physical Activity Practice Scale (10 items) were administered, and both scales showed high internal consistency ($\alpha = 0.91$ and $\alpha = 0.88$, respectively).

The results showed that the overall level of health awareness was high ($m = 3.59$, $p = 0.48$), as was the level of physical activity ($m = 3.72$, $p = 0.65$). Pearson's correlation matrix revealed a statistically significant positive correlation between the overall health awareness score and physical activity ($r = 0.49$, $p < 0.01$). Stepwise multiple linear regression analysis yielded a final model that explained 43.1% of the variance in physical activity ($R^2 = 0.431$, adjusted $R^2 = 0.414$, $F(8, 211) = 20.38$, $p < 0.001$). Sports awareness was the strongest predictor ($\beta = 0.37$, $p < 0.001$), followed by postural awareness ($\beta = 0.19$, $p = 0.003$), and then personal awareness ($\beta = 0.14$, $p = 0.033$). Nutritional, environmental, and preventative awareness dimensions did not contribute directly and significantly to predicting physical behavior, revealing a clear cognitive-behavioral gap in these three dimensions.

The study concludes that health awareness is a multidimensional construct, not a single variable, and recommends restructuring university health education programs to shift from theoretical knowledge transfer to training in applied behavioral skills. Skills Training), with a particular focus on promoting

athletic and postural awareness as the two most influential levers in converting knowledge into actual practice.

Keywords: health awareness, physical activity, health belief model, multivariate prediction, university students, cognitive-behavioral gap, STROBE criteria

Introduction

Regular physical activity is one of the cornerstones of preventing non - communicable diseases. Diseases), including cardiovascular diseases, type 2 diabetes, and obesity, as well as its role in promoting the mental and physical health of young people, especially university students who are undergoing significant transitions in their academic and social lives. The World Health Organization recommends that adults engage in 150 to 300 minutes per week of moderate-intensity aerobic activity, or 75 to 150 minutes of vigorous-intensity activity, or an equivalent combination of both, while minimizing sedentary behavior whenever possible [1]

Despite the globally proven health benefits of regular exercise, recent literature indicates persistently high rates of physical inactivity among university students, and that simply belonging to an academic environment or health-related major does not automatically guarantee regular physical activity outside of academic requirements [2]. Recent systematic reviews also confirm that physical activity is protectively associated with levels of anxiety, depression, and stress of university life, and that the positive effect is multiplied as the intensity and regularity of the practice increases [3].

The problem of the study, its questions, and its hypotheses

The problem addressed in this study lies in the noticeable contradiction between the high levels of theoretical health awareness among university students and the continued low or fluctuating rates of regular physical activity. The research gap specifically stems from the fact that most previous studies have treated health awareness as a one-dimensional construct, without examining the differential impact of each of its six dimensions (personal, nutritional, athletic, postural, environmental, and preventative) on predicting physical behavior—a gap this study aims to address.

Study questions

- What is the level of health awareness in its six dimensions among university students?
- What is the level of physical activity among university students?
- Is there a statistically significant correlation between the dimensions of overall and sub-health awareness and the practice of physical activity?
- To what extent does each dimension of health awareness contribute to predicting physical activity after adjusting for demographic variables?
- Are there statistically significant differences in health awareness and physical activity attributable to gender or academic level?

Study hypotheses

First hypothesis: There is a statistically significant positive correlation between the dimensions of overall and sub-health awareness and the practice of physical activity among university students.

predictive power of the six dimensions of health awareness differs in explaining the variation in physical activity, such that some dimensions contribute directly and significantly while others do not.

Third hypothesis: There are statistically significant differences in physical activity attributable to the gender variable, while there are no significant differences attributable to academic level.

Study objectives and importance

The study aims to achieve the following objectives:

- Determining the general level of health awareness in its six dimensions and the level of physical activity practice among university students.
- Uncovering the nature of the correlational relationships between the dimensions of health awareness and the practice of physical activity.
- Constructing a multivariate predictive model that determines the relative weight of each dimension of health awareness in explaining the variance in physical behavior.
- To reveal differences in the studied variables according to the variables of gender and academic level.
- Providing practical, evidence-based recommendations for redesigning university health education programs.

The theoretical importance of the study stems from the fact that it tests the deconstruction of health awareness into its sub-dimensions within an integrated predictive model based on the health belief model and the theory of planned behavior, while its practical importance stems from the possibility of employing its results in designing more targeted and effective university health education programs, focusing resources on the dimensions with the greatest predictive power instead of an even and undirected distribution of educational effort

Study methodology and design

The study adopted a descriptive, correlational, predictive approach with a cross -sectional design. Design), which allows measuring the independent variables (dimensions of health awareness) and the dependent variable (practice of physical activity) at a single point in time, and examining the correlational and predictive relationships between them.

Study community

The study population consisted of all university students enrolled in the four academic levels. A stratified random sample of 220 students was selected, taking into account its size to meet the requirements of multiple linear regression analysis [4]. Table (1) and Figure (1) illustrate the distribution of the sample members according to the variables of gender and academic level.

Table 1. Distribution of the study sample according to the variables of gender and academic level (n (220 =

variable	Category	Number (n)	(%) Percentage
Sex	Males	137	%62.3
	females	83	%37.7
Academic level	Level One	58	%26.4
	Level Two	54	%24.5
	Level Three	56	%25.5
	Level Four	52	%23.6
Total	—	220	%100

Study tools

Two main instruments were used to collect data: the first was the Health Awareness Scale, a 42-item scale distributed across six sub-dimensions (personal awareness, nutritional awareness, exercise awareness, postural awareness, environmental awareness, and preventative awareness), with seven items per dimension, using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The second instrument was the Physical Activity Scale, consisting of 10 items distributed across four sub-dimensions (frequency, duration, intensity, and regularity).

The face validity of both instruments was verified by presenting them to a panel of expert reviewers specializing in physical education and public health, and their reliability was verified using Cronbach's internal consistency coefficient. Alpha), and the results showed high reliability coefficients exceeding the statistically acceptable minimum (0.70), as shown in Table (2).

Table 2. Reliability coefficients (internal consistency) of the study instruments

The tool	Number of paragraphs	Cronbach's alpha (α) stability coefficient	stability level
Health awareness scale (all six (dimensions combined	42	0.91	Very high
Physical activity scale	10	0.88	high

Statistical methods

The data were statistically analyzed using the Statistical Package for the Social Sciences (SPSS v.28). The statistical methods used included: arithmetic means and standard deviations for descriptive statistics, Pearson's correlation coefficient to examine correlational relationships, the independent samples t-test and one-way ANOVA to detect demographic differences, and stepwise multiple linear regression analysis. Multiple Linear Regression) to build the predictive model, along with checking the Variance Inflation Coefficient (VIF) to ensure that the model is free from the multicollinearity problem.

Study results

The results showed that the overall level of health awareness among the study participants was high, with a mean score of (M = 3.59, p = 0.48), while the level of physical activity was also high, with a mean score of (M = 3.72, p = 0.65). At the sub-dimension level, sports awareness ranked highest with a mean score of (3.78), followed by preventative awareness (3.68), personal awareness (3.62), postural awareness (3.55), environmental awareness (3.48), and finally nutritional awareness (3.45), as illustrated in Table (3) and Figure (2).

Table 3. Arithmetic means and standard deviations for the dimensions of health awareness and physical activity practice (n = 220)

The dimension of health awareness	arithmetic mean	standard deviation	Order	Level
Sports awareness (Sport) Awareness	3.78	0.44	1	high
Preventive awareness Awareness	3.68	0.49	2	high
Personal awareness Awareness	3.62	0.52	3	high
Postural awareness Awareness	3.55	0.58	4	high
Environmental awareness Awareness	3.48	0.63	5	middle
Nutritional awareness Awareness	3.45	0.61	6	middle
Overall score of health awareness	3.59	0.48	—	high
Physical activity (total score)	3.72	0.65	—	high

Correlation matrix between dimensions of health awareness and physical activity

Pearson's correlation coefficient analysis revealed a statistically significant positive correlation between the overall health awareness score and physical activity ($r = 0.49$, $p<0.01$). At the sub-dimension level, sports awareness was the most strongly correlated with physical activity ($r = 0.49$, $p<0.01$), followed by postural awareness ($r = 0.38$, $p<0.01$), and then personal awareness ($r = 0.31$, $p<0.01$). The correlation was relatively weaker in the cases of nutritional awareness ($r = 0.22$, $p<0.01$) and environmental awareness ($r = 0.19$, $p<0.05$), as illustrated in Table (4) and Figure (3).

Table 4. Pearson correlation coefficients between dimensions of health awareness and physical activity practice (n = 220)

The dimension of health awareness	Pearson correlation coefficient (r)	Significance level (p)	Strength of the relationship
Sports awareness	**0.49	0.01>	Moderate to strong
Postural awareness	**0.38	0.01>	Medium
personal awareness	**0.31	0.01>	Medium
Food awareness	**0.22	0.01>	weak to moderate
Environmental awareness	*0.19	0.05>	weak
Preventive awareness	**0.24	0.01>	weak to moderate
Overall score of health awareness	**0.49	0.01>	Moderate to strong

*Statistically significant at the (0.01) level * Statistically significant at the (0.05) level***

Tests of differences according to demographic variables

The results of the independent samples t-test showed no statistically significant differences in the overall health awareness score attributable to gender ($t = 1.85$, $p = 0.067$), while statistically significant differences were found in physical activity participation favoring males ($t = 2.34$, $p = 0.020$). At the academic level, the results of the one-way ANOVA did not show statistically significant differences in either health awareness ($F = 1.42$, $p = 0.238$) or physical activity ($F = 0.98$, $p = 0.405$), as shown in Table 5.

Table 5. Results of the differences tests (t and ANOVA) according to the variables of gender and academic level

dependent variable	independent variable	Test value	Statistical significance (p)	Result
Health awareness (overall score)	Sex (t-test)	t = 1.85	0.067	Non-functional
Engaging in physical activity	Sex (t-test)	t = 2.34	0.020	Function favoring males
Health awareness (overall score)	Academic level (ANOVA)	F = 1.42	0.238	Non-functional
Engaging in physical activity	Academic level (ANOVA)	F = 0.98	0.405	Non-functional

Multiple linear regression analysis and predictive model

stepwise multiple linear regression analysis was conducted, introducing the two control variables (gender and academic level) in the first step, followed by the six dimensions of health awareness in subsequent steps, using physical activity as the dependent variable. The final model demonstrated high explanatory power, explaining 43.1% of the total variance in physical activity ($R^2 = 0.431$, adjusted $R^2 = 0.414$, $F(8, 211) = 20.38$, $p<0.001$), as shown in Table 6.

Table 6. Summary of the Final Stepwise Multiple Linear Regression Model

Model indicator	Value
Coefficient of determination (R^2)	0.431
Adjusted R^2 coefficient of determination	0.414
Value (F) and degrees of freedom	F(8, 211) = 20.38
Level of significance	p<0.001
Highest value for the Variance Inflation Coefficient (VIF)	(No linear multiplicity) 2.5>

Regarding the relative contribution of each independent variable, athletic awareness proved to be the strongest predictor of physical activity (β = 0.37, p<0.001), followed by postural awareness (β = 0.19, p = 0.003), and then personal awareness (β = 0.14, p = 0.033). In contrast, the dimensions of nutritional awareness (β = 0.08, p = 0.182), environmental awareness (β = 0.05, p = 0.412), and preventative awareness (β = 0.03, p = 0.678) did not make a direct, statistically significant contribution to predicting physical behavior, as illustrated in Table (7) and Figure (4).

Table 7. Standardized regression coefficients (beta) for the six dimensions of health awareness in .predicting physical activity

predictor variable	Standardized beta coefficient (β)	value (t)	Significance level (p)	Significance
Sports awareness	0.37	5.92	0.001>	Function
Postural awareness	0.19	3.02	0.003	Function
personal awareness	0.14	2.14	0.033	Function
Food awareness	0.08	1.34	0.182	Non-functional
Environmental awareness	0.05	0.82	0.412	Non-functional
Preventive awareness	0.03	0.42	0.678	Non-functional

These results together indicate partial acceptance of the first hypothesis (there is a significant positive correlation between the dimensions of overall and sub-health awareness and the practice of physical activity, with varying strengths of the relationship between the dimensions), acceptance of the second hypothesis (variability in the predictive power of the dimensions of health awareness), and partial acceptance of the third hypothesis (there are significant differences in physical activity attributable to gender, and no significant differences attributable to academic level).

Discussion of Results

The results of the current study confirm the need to treat health awareness not as a one-dimensional construct, but as a multidimensional one, where each dimension contributes to a varying degree to predicting physical behavior. Physical awareness (β = 0.37) is the most prominent predictive force in the final model, which is consistent with the logic of the Health Belief Model (HBM), which posits that a deep understanding of the benefits of a behavior increases the likelihood of engaging in it [5]. Students with advanced athletic awareness directly and tangibly perceive the physiological and psychological benefits of movement, transforming their knowledge into actionable behavioral intentions, consistent with recent studies that directly applied the health belief model to the exercise context of university students [6], Zhang [7].

Postural awareness (β = 0.19) ranked second in predictive power , reflecting students' understanding of the importance of proper biomechanics and preventing postural deformities and injuries during training. This can be explained by the theory of planned behavior, as an individual's awareness of their ability to control their body positions during movement (perceived behavioral control) increases their confidence in undertaking the movement experience without fear of injury [8].

Conversely, the results reveal a clear 'knowledge-behavioral gap' in the dimensions of nutrition, environment, and prevention. Although students possessed moderate to high levels of nutritional and preventative knowledge (M = 3.45 and 3.68, respectively), this knowledge did not translate into a direct and statistically significant predictive contribution to physical activity. This aligns perfectly with Rimal's (2000) conclusion that health knowledge is a necessary but insufficient condition for producing behavior unless the relationship is mediated by factors such as self-efficacy, self-motivation, and environmental facilitators. It also conforms to the findings of a recent systematic review showing that health education interventions in higher education often increase students' theoretical knowledge without a corresponding improvement in actual health behavior indicators [9].

Regarding demographic differences, the lack of significant differences in overall health awareness between the sexes, compared to significant differences in actual physical activity participation favoring males, reinforces the hypothesis that the gender gap lies in behavior rather than knowledge. This gap may stem from environmental, social, and cultural factors that limit females' access to or regular participation in sports facilities, as indicated by recent literature on physical activity among female university students. Likewise, the absence of significant differences attributable to academic level indicates that patterns of health awareness and behavior stabilize early in students and do not necessarily change simply by progressing academically without intentional educational intervention. This is consistent with what a recent systematic review showed, namely that the relationship between physical activity and mental health of university students remains strong and stable across different educational stages unless actual interventions take place.

Overall, the current findings support the theoretical framework based on integrating the health belief model and planned behavior theory. It is evident that dimensions most closely linked to direct physical experience (athletic, physique, personal) are the most predictive of actual behavior, while more abstract or temporal dimensions (nutritional, environmental, protective) remain confined to the cognitive realm unless supported by direct behavioral interventions that enhance self-efficacy and intrinsic motivation [10],[11].

To highlight the position of the current findings within the context of international literature, Table (8) compares the most prominent findings of the current study with the results of recent studies that addressed the relationship between health awareness or health beliefs and physical activity among university students[12],[13].

Table 8. Comparison of current results with the results of recent relevant international studies

the study	The strongest predictors of physical activity	Explained variance ratio
Current study (2026)	, Athletic awareness, posture personal	%43.1
Sheng et al . (2023)	Self-efficacy in exercise and social support from peers	Not quantifiable as a percentage of the total
Zhang et al . (2024)	Physical health beliefs mediated by the visualization of exercise	Significant partial indirect effect
— Brown et al . (2024) Systematic review	Cognitive, motivational, and environmental factors combined (COM-B)	Qualitative analysis, aggregate analysis without a standardized ratio
— Buja et al . (2020) Systematic Review	Public health culture (without (breaking down into sub-dimensions	Generally positive relationship of varying strength

This comparison makes it clear that the current study adds qualitative value to the literature by breaking down health awareness into its six dimensions and determining their precise relative weight within a standardized quantitative regression model, instead of merely studying health awareness or health culture as a single overall variable, as is common in most previous studies[14],[15].

Conclusions and Recommendations

Health awareness is a multidimensional construct and cannot be treated as a single variable when studying or predicting health behaviors. postural, and personal awareness are the crucial and statistically significant variables in predicting physical activity among university students. Nutritional, environmental, and preventative knowledge does not automatically translate into actual physical activity in the absence of supportive behavioral interventions that promote self-efficacy and motivation. There is a statistically significant gender gap in the level of actual physical activity in favor of males, despite the equal level of theoretical health awareness between them. Progress in academic level is not associated with an automatic improvement in health awareness or physical activity, which calls for intentional and continuous educational intervention throughout the university years. Restructuring health education programs in universities to shift from theoretical lectures to training in applied behavioral skills. Skills Training based on actual practice, not just knowledge memorization. Designing preventative sports programs that focus specifically on promoting postural awareness and correcting body postures during exercise, reducing the risk of injuries and promoting continuity in physical activity. Establishing sports and health guidance and counseling centers within universities that provide personalized individual consultations based on assessing the level of awareness and behavior of each student individually. Developing awareness campaigns specifically designed to bridge the knowledge-behavioral gap in the dimensions of nutrition, environment and prevention, through interactive and practical activities instead of abstract theoretical content. Designing university sports programs and activities that take into account gender differences in access to sports facilities, thereby reducing the gap in actual practice in favor of females. Integrating health awareness and physical behavior indicators into academic advising and periodic follow-up systems for students across different academic levels.

The reviewer

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