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RELATIONSHIP BETWEEN PHYSICAL ACTIVITY AND OBESITY AMONG STUDENTS OF PHYSICAL EDUCATION AT THE ISLAMIA UNIVERSITY BAHAWALPUR

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ABSTRACT
Among college students everywhere, especially those studying physical education, obesity is becoming a significant public health concern. Although institutions like the Islamia University of Bahawalpur emphasize the importance of health and exercise in their curricula, students remain at risk for weight-related problems. This study aimed to investigate whether increased levels of physical activity are associated with lower obesity rates and improved body composition among physical education students at Islamia University in Bahawalpur.

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Data were collected from 106 students through a cross-sectional study using a validated questionnaire, which was then analyzed using Pearson correlation and regression analysis with SPSS version 26. Overall, participants exhibited a moderate level of physical activity and a reasonable understanding of the risks associated with obesity. Statistical analysis indicated a strong negative correlation between obesity and physical activity ($r = -0.365$, $p < 0.01$), suggesting that higher physical activity levels are linked to lower obesity rates. Furthermore, regression analysis indicated that physical activity is a significant predictor of obesity ($\beta = 0.612$, $p < 0.001$), explaining 37.4% of the total variation in obesity rates ($R2 = 0.374$, $p < 0.001$). Despite their theoretical knowledge, students faced challenges in applying what they learned due to a significant gap between theory and practice; regular exercise is essential for effective weight management. Engaging in physical activity is, in essence, a major negative predictor of obesity among physical education students; however, the disparity between theoretical knowledge and practical application is still substantial. Behavior indicates that it is not feasible to encourage healthy lifestyle choices solely through academic comprehension of the subject. To enhance athletic facilities, incorporate motivational components into the curriculum, and develop structured exercise programs, one must take action. Boost the dependability of future health educators and personal health outcomes.

Keywords:
University students, body mass index, physical activity, obesity, fitness habits, and student well-being.

INTRODUCTION

Since 1975, the global obesity rate has almost tripled (Organization 2020), affecting young people disproportionately greatly in poor nations like Pakistan. University students are very vulnerable, since their eating habits change and they live a sedentary life connected with academic pursuits. Importantly, pupils with Physical education training a cohort that should be leading the way toward healthy behavior more likely to grow obese. (Nasir, Junaid et al. 2023) stressed the need of good behaviors.

As a result of changes in dietary habits, lifestyle choices, and educational pressures, individuals frequently engage in less physical activity as they transition into adulthood. It is noteworthy that this pattern also impacts those involved in physical education, who are expected to promote healthy lifestyles. Despite their training and capability to engage in physical activities, some individuals still display unhealthy habits, prompting the question of how this occurs. In reality, they may effectively apply their academic insights. The Department of Physical Education at Islamia University of Bahawalpur (IUB), one of the leading institutions in South Punjab, offers courses aimed at enhancing health and physical activity, thus equipping students with both theoretical knowledge and practical experience. Initial observations and anecdotal reports suggest that certain students remain vulnerable to unhealthy behaviors, even with their understanding of health, fitness in the classroom, and everyday life. Children continue to face challenges related to obesity or being overweight.

For many reasons, it's critical to assess the relationship between obesity and physical activity in this community. Above all, pupils of physical education are meant to be the next generation of health and fitness leaders. Their professional reputation may suffer if they have difficulties maintaining a healthy weight. Moreover, their issues can bring to light underlying flaws in the theoretical and practical parts of their teaching. The findings of such studies might ultimately help to inform the legal systems, more successful health programs at colleges, and development of focused fitness initiatives for students.

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Consistent exercise improves metabolic function, cardiovascular health, muscular strength, and body fat reduction (Warburton and Bredin 2017). Additionally very useful for enhancing one's mental health. Physical activity is absolutely vital for retaining a healthy energy equilibrium and preventing weight increase (Jakicic, Rogers et al. 2018). adults 18 years old or above. The (Bull, Al-Ansari et al. 2020) advises older individuals to aspire for either 150 minutes of moderate-intensity activity per week or 75 minutes of high-intensity exercise. It has been observed, nevertheless, that college students' physical activity level has decreased worldwide (Keating, Guan et al. 2005).

Cultural expectations, changes in urban living, academic pressures, and a lack of nutritional awareness worsen the obesity issue in Pakistan. Even physical education students may face barriers such as inadequate practical training, unstructured workout routines, and poor monitoring of physical activity levels (Nasir, Junaid et al. 2023). Moreover, while the academic curriculum might thoroughly address health and fitness, it does not always lead to sustained healthy behavior in practice.

Earlier research on the connection between physical activity and obesity among college students had inconsistent findings. According to several studies, routine exercise shows a great negative link with obesity markers like waist circumference and BMI (Keating, Guan et al. 2005). Others, meanwhile, say that the considerable influences of stress, inheritance, nutrition, and sleep habits (Pratt, Macera et al. 2000) imply that exercise alone may not be enough to prevent obesity. Maintaining an active lifestyle, especially among young people, is widely regarded to help lower obesity, though.

Among physical education pupils at Islamia University of Bahawalpur, this study aims to investigate the connection between obesity and exercise. It will investigate how different components of physical activity frequency, length, and intensity relate to obesity markers like BMI. The goal is to determine if physical education helps people keep a good body composition.

The specific population under investigation is especially interesting since it is supposed to stand for physical fitness and well-being. A discrepancy between pupils' understanding and their actual health practices might point to the need for curriculum modifications, increased real-world involvement, or improved motivational strategies. Pakistan may find the findings of this research especially useful in shaping next events and policies meant at lowering obesity levels among university students.

One of the main problems that has to be thoroughly considered is the reality that obese youngsters are having problems in physical education. By looking at the connection between body weight and physical activity, this study seeks to improve educational settings and help create focused interventions for this group. Teachers have a crucial part in the continuous worldwide fight against obesity.

Objectives:

1. To determine the relationship between obesity and physical activity among students in the Department of Physical Education at Islamia University of Bahawalpur.
2. To evaluate the impact of physical activity on obesity-related markers, such as body mass index (BMI), among physical education students at Islamia University of Bahawalpur.

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Questions:

i. What is the relationship between obesity and physical activity among physical education students at Islamia University of Bahawalpur?

ii. Among physical education students at Islamia University of Bahawalpur, how does exercise affect obesity indicators like the BMI?

Research Hypotheses

H_1: There is a significant relationship between physical activity and obesity among students of physical education at the Islamia University of Bahawalpur.

H_2: Physical activity has a significant impact on obesity among students of physical education at the Islamia University of Bahawalpur.

LITERATURE REVIEW

An excess of body fat and is linked to a higher risk of chronic illnesses define the complicated, multifactorial condition known as obesity.(Kokubo, Feigin et al. 2014).Data from many parts of the world show increasing obesity levels among young adults, especially among university students (Raza 2021).The university experience is defined by lifestyle changes including more drinking, inconsistent eating patterns, and a sedentary study plan.Stress and eating patterns greatly affect weight gain (Borges, Rama et al. 2012);(Beydoun, Hossain et al. 2018).Urbanization and lifestyle changes have been connected to growing young Pakistani obesity levels (Mushtaq, Gull et al. 2011).Regular physical exercise is good for body composition, metabolic function, cardiovascular health, and psychological well-being (Warburton and Bredin 2017);(Jakicic, Rogers et al. 2018).International recommendations call for adults to exercise at least 150 minutes of moderate-intensity activity or 75 minutes of vigorous-intensity activity per week (Bull, Al-Ansari et al. 2020).

Studies have found that higher physical activity is connected with less adiposity, better lipid profiles, and reduced insulin resistance (Lee, Shiroma et al. 2012);(Fogelholm 2010).Longitudinal studies show that staying physically active throughout college will assist people in keeping a healthy weight (Borges, Rama et al. 2012).Many studies have consistently shown an inverse link between physical activity (PA) and obesity indicators (BMI, waist circumference). in adolescents and young adults.The closest links between physical activity and a fit body composition may be seen at moderate to high intensity (Hill, Wyatt et al. 2012);(Johnson and Turner 2003).Dietary decisions, genes, sleep patterns, and psychological factors, however, have a significant influence on the risk of obesity (Pratt, Macera et al. 2000), beyond physical activity (PA) alone.

Weight loss results often more effective when physical exercise is combined with nutritional education initiatives rather than when either one is used alone.Contrary to the common belief that students enrolled in physical education programs have the healthiest personal health behaviors, recent studies suggest the other: academic participation Not always in agreement with the greatest health habits. Students show greater awareness and higher rates of physical activity when they are educated about fitness (Nasir, Junaid et al. 2023).Studies in South Asia reveal that low degrees of physical activity and even obesity may be present in university environments even among students enrolled in health-related courses(Aslam, Ahmed et al. 2021). Several causes including insufficient curriculum, a lack of sustained

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drive, little institutional support, and a lack of resources cause this. Kaur et al., 2020. Practical training options.

Drive, self-efficacy, and social support are psychosocial variables that contribute to influence together with environmental elements like the stress of the curriculum and the available resources. Bauman et al. played a mediating part in the connection between physical activity and obesity. Astin and Bandura argue that role modeling and student involvement are effective. Methods to boost physical activity adherence and enhance body composition outcomes (Sallis, McKenzie et al. 1997). Better role models in teacher and peer groups as well as more involvement in organized physical activities are linked to this.
This study aims at looking at the relationship between obesity and physical activity in physical education pupils at Islamia University of Bahawalpur. The relationship between various physical activity characteristics frequency, length, intensity, for example with obesity indicators like BMI will be investigated. The goal is to determine whether physical education helps to keep a healthy body composition.

The specific group under investigation is quite significant since it is seen as representing health and fitness. A gap between what students know and their real health decisions might indicate a need for curriculum changes, greater hands-on involvement, or superior motivational approaches. Especially in Pakistan, the findings of this study may be crucial in guiding future laws and initiatives meant to reduce obesity rates among college students.

METHODOLOGY

Descriptive cross-sectional correlational design was used in this study to investigate the link between obesity and physical activity among undergraduate students enrolled in the Department of Pakistan's Bahawalpur The Islamia University (IUB) Physical Education. Simultaneous measurement of the independent variable (physical activity) and the dependent variable (obesity) with this design let the researcher investigate their correlation at an exact moment in history(Setia 2016). The study was carried out in the Department of Physical Education at IUB, a premier state institution in southern Punjab. With theoretical as well as practical instruction in health promotion and sports sciences, the department is a great environment for investigating patterns of physical activity and Future health and fitness experts' weight status among themselves.

The Department of Physical Education's enrolled undergraduate students in the 2024–2025 academic year comprised the target population. A non-probability convenience sampling approach was employed to guarantee participation from pupils in various sports disciplines who were readily available given time and access restrictions. prepared and willing to assist with the research. Ten of 120 dispersed questionnaires were finished and returned, giving an 88.3% response rate. Of the ultimate sample, 84 were male (79.2%) and 22 were female (20.8%). Although convenience sampling made the study participants easily accessible, it is acknowledged as a drawback that might influence the generalizability of the results.

Physical activity (PA), assessed by self-reported frequency, duration, and intensity of participation in both organized (e.g., Unstructured (e.g., walking, cycling) exercises

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and team sports, gym workouts. The dependent variable, measured using the Body Mass Index (BMI), computed as weight (kg) divided by height (m^2), was obesity. BMI classification followed World Health Underweight (<18.5), normal (18.5–24.9), overweight (25–29.9), and obese (≥30) are Organizational (WHO) standards. Notes on participants' views of weight and health were also made.

Two-part pre-validated, structured questionnaire gathered data. Gender, age, and major sport were among the demographic information gathered in Part A. Ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), Part B comprised seventeen objects evaluating physical activity habits and attitudes toward obesity on a five-point Likert scale. Senior faculty members ensured the instrument's content validity by expert evaluation; reliability was verified via a pilot test including 20 pupils not part of the primary sample. Excellent internal consistency was shown by Cronbach's Alpha coefficients of 0.82 for the physical activity subscale and 0.75 for the obesity perception subscale.

Official permission was obtained from the Department of Physical Education and the academic advisor before to data collecting. Regular class meetings between March and April 2025 produced the data gathered. Participants were informed on the goal of the study, guaranteed of secrecy, and instructed to submit written informed consent. 106 valid responses were gathered for analysis from questionnaires hand-collected.

IBM SPSS Statistics (Version 26) was used for data analysis. Demographic data and variable distributions were presented utilizing descriptive statistics including means, standard deviations, frequencies, and percentages. Pearson's Product-Moment Correlation (r) among inferential statistics helped to evaluate the strength and direction of the connection between physical activity and obesity, hence addressing the first Research question one (RQ1). Simple linear regression study was used to examine the second research question (RQ2) and ascertain whether physical exercise substantially foretold obesity results. For all inferential tests, a p-value less than 0.05 was regarded as statistically significant.

Throughout the inquiry, ethical norms were strictly observed. The study was entirely voluntary, and all participants gave written informed consent, giving them the option to quit at any moment without incurring any consequences. Formal clearance was obtained from the appropriate departmental authorities at IUB, and both anonymity and confidentiality were maintained throughout the data collection and analysis procedure. before the start of the experiment.

RESULTS

A- Descriptive Statistics

The Department of Physical Education at The Islamia University of Bahawalpur (IUB) involved 106 students in this study. Below is the demographic profile of the respondents along with their sports participation patterns. Most participants were aged between 19 and 21 years (57.5%), while 25.4% were between 22 and 25 years, 13.2% were aged 17 to 18, and another 25.4% were also between 22 and 25 years. A small percentage, 3.8%, were aged 26 to 27, with an average age of 20.69 years (2.30). In terms of gender distribution, 79.2% of the participants were male, and 20.8% were female. The students participated in a variety of sports, with cricket, volleyball, and

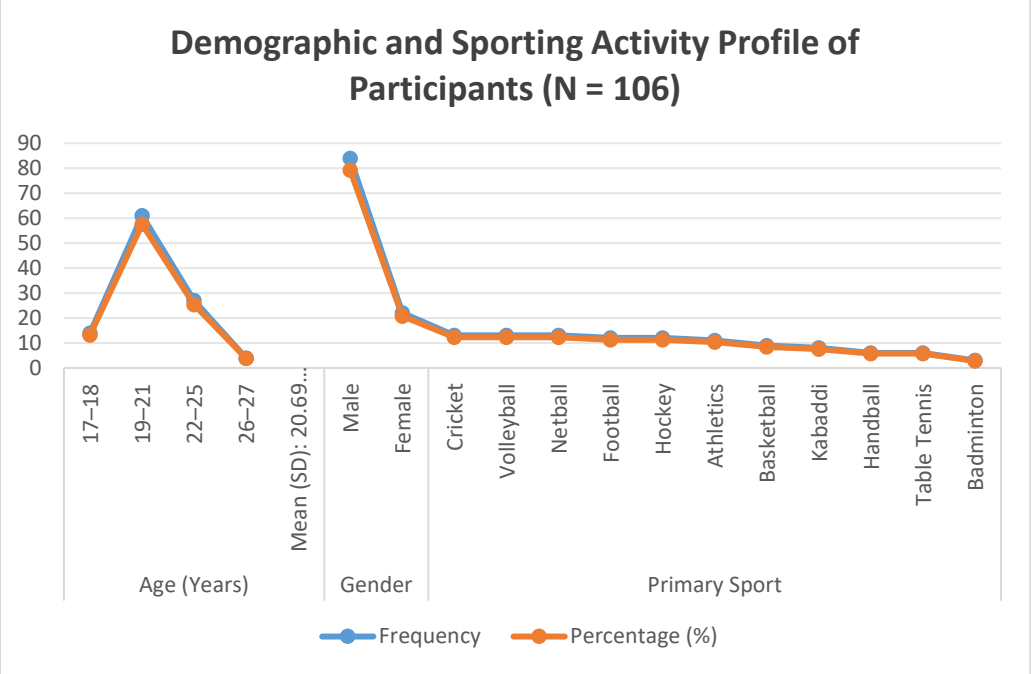
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netball each representing 12.3% of the participants. Football and hockey were close behind, each at 11.3%, followed by athletics at 10.4%. Basketball made up 8.5% of the total, while handball and table tennis each accounted for 5.7%. A smaller number of students (2.8%) identified badminton as their main sport. These results indicate that the university predominantly consists of young men who are actively engaged in various sports activities.

Table 1: Demographic and Sporting Activity Profile of Participants (N = 106)

Characteristic	Category	Frequency	Percentage (%)
Age (Years)	17–18	14	13.2
	19–21	61	57.5
	22–25	27	25.4
	26–27	4	3.8
	Mean (SD): 20.69 (±2.30)		
Gender	Male	84	79.2
	Female	22	20.8
Primary Sport	Cricket	13	12.3
	Volleyball	13	12.3
	Netball	13	12.3
	Football	12	11.3
	Hockey	12	11.3
	Athletics	11	10.4
	Basketball	9	8.5
	Kabaddi	8	7.6
	Handball	6	5.7
	Table Tennis	6	5.7
	Badminton	3	2.8

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Graph 01: Demographic and Sporting Activity Profile of Participants (N = 106)

Knowledge of obesity and physical activity trends

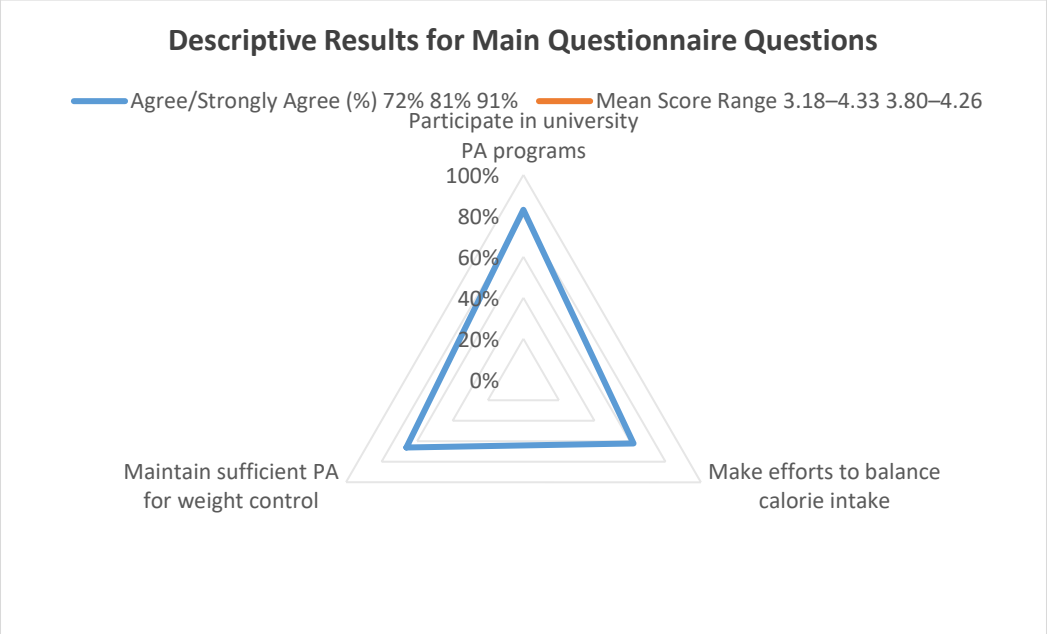
Participants expressed a solid understanding of obesity and showed active involvement in physical activity behaviors. Most acknowledged the significant health risks linked to obesity and recognized the vital role of physical activity in its prevention and management. As outlined in Table 2, 72% of respondents agreed or strongly agreed that obesity presents serious health risks, while 81% felt that physical activity is crucial in fighting obesity, with mean scores ranging from 3.18 to 4.33. Regarding self-reported behaviors, 91% indicated they participated in daily or regular physical activity, and 83% mentioned involvement in university-based physical activity programs, with mean scores between 3.80 and 4.26. Furthermore, 62% of participants reported efforts to balance their calorie intake, and 66% stated they maintained adequate physical activity for effective weight control. These results indicate a generally high level of awareness and participation in health-promoting behaviors among the students, although there is still some opportunity for improvement in achieving consistent dietary balance and long-term adherence to activity.

Table 2: Descriptive Results for Main Questionnaire Questions

Item Category	Key Finding	Agree/Strongly Agree (%)	Mean Score Range
Obesity Awareness	Recognize serious health risks of obesity	72%	3.18–4.33
	Believe PA is essential to combat obesity	81%	
Self-Reported Behavior	Engage in daily/regular PA	91%	3.80–4.26
	Participate in university PA	83%	

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Item Category	Key Finding	Agree/Strongly Agree (%)	Mean Score Range
	programs		
	Make efforts to balance calorie intake	62%	
	Maintain sufficient PA for weight control	66%	



Graph 02: Descriptive Results for Main Questionnaire Questions

B- Statistical inferences

Analysis of Correlation

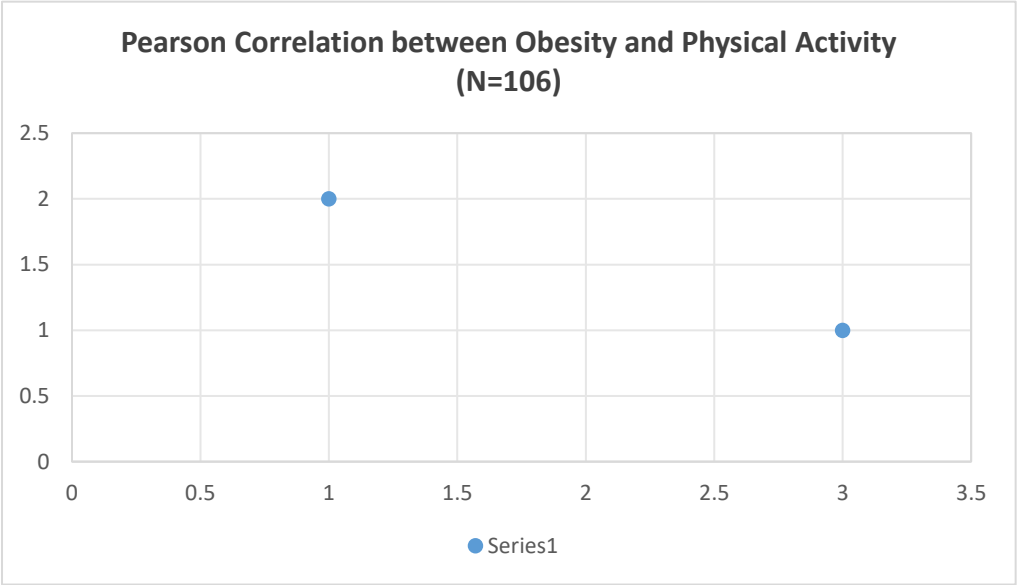
A Pearson correlation was run to answer Research Question 1: What is the relationship between physical exercise and obesity? Physical exercise was shown to be inversely correlated with obesity levels ($r = -0.365$, $p < .01$). This supports Hypothesis 1 (H_1), which states that obesity levels fall with more physical activity.

Table 3: Pearson Correlation between Obesity and Physical Activity (N=106)

Variable	1	2
1. Physical Activity	1	
2. Obesity	−0.365**	1

Note: **p < .01 (2-tailed)**.

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Graph 03: Pearson Correlation between Obesity and Physical Activity (N=106)

Regression study

A simple linear regression was carried out to answer Research Question 2: Does physical activity predict obesity?

The model was statistically significant, $F(1, 104) = 62.15$, $p < .001$, with an $R^2 = 0.374$, suggesting that 37.4% of the obesity variance was accounted for by physical activity.

Supporting Hypothesis 2 (H_2), the regression coefficient ($\beta = 0.612$, $p < .001$) suggests that obesity levels were significantly predicted by physical activity.

Table 4. Simple Linear Regression Forecasting Obesity from Physical Activity

Predictor	B	SE	β	t	p
(Constant)	−3.74	1.51		−2.48	.015
Physical Activity	0.20	0.04	0.61	5.13	<.001

Dependent Variable: Obesity Score.

DISCUSSION

A study conducted among students taking physical education courses at The Islamia University of Bahawalpur examined the relationship between obesity and physical activity (PA). The findings indicated a clear negative correlation between obesity levels and physical activity: as physical activity increased, obesity rates decreased. The correlation study ($r = -0.365$) supports previous research that identifies physical activity as a crucial element in weight management and metabolic health ($p < 0.01$). (Aslam, Ahmed et al. 2021); (Kaur, Prachi et al. 2019); (Warburton and Bredin 2017); and (Jakicic, Rogers et al. 2018) have reported similar trends among university students in South Asia.

Further regression analysis identified physical activity as a significant predictor of changes in obesity ($R2 = 0.374$, $p < 0.001$), underscoring its vital role in maintaining a healthy body composition, even among students in physical education. However, the model's limited explanatory power indicates that other factors, such as diet, genetics, stress, and sleep patterns, also contribute to obesity (Pratt, Macera et al. 2000).

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These findings align with Bandura's Social Learning Theory from 1977 and Astin's Student Involvement Theory from 1984. The absence of peer influence makes it challenging for many students to translate their theoretical knowledge of fitness and nutrition into practice. Adverse conditions and insufficient institutional support further complicate this issue. Astin argues that consistent participation in organized activities fosters behavioral change, as increased involvement leads to improved outcomes.

While most participants were aware of the risks associated with obesity and the benefits of physical activity (awareness levels ranged from 72% to about a third of respondents), 34% admitted they did not engage in enough exercise to effectively manage their weight. Among those, 81% acknowledged this shortcoming. This suggests that mere awareness is not enough to drive behavioral change; institutional initiatives, peer support, and ongoing motivation are essential.

The divide between theory and practice has significant consequences for prospective instructors and health advocates in the field of physical education. Through supportive policies and curriculum design, university programs need to include regular exercise into their academic systems. By boosting campus fitness programs, extending access to athletic amenities, and including motivational tactics into our academic curriculum, we can successfully overcome this divide and advance better health. Create a strong base for future health educators by examining students' lifestyles.

CONCLUSIONS AND RECOMMENDATIONS

This study explored the relationship between obesity and physical activity (PA) among students in the Department of Physical Education at The Islamia University of Bahawalpur. The findings revealed a significant inverse correlation, indicating that lower rates of obesity are associated with higher levels of physical activity.

Regression analysis indicates that physical activity is a major factor contributing to obesity; specifically, it accounts for 37.4% of the variance in obesity scores. These findings align with previous global studies highlighting the crucial role that regular exercise plays in maintaining a healthy body composition and reducing the risk of obesity and disease (Warburton and Bredin 2017);(Organization 2020).

Many participants expressed awareness of the health risks linked to obesity and the benefits of exercise; however, many were still uncertain about the best course of action. They lag behind in engaging in regular physical activity. This gap between knowledge and action underscores the need for behavioral interventions that focus on motivation, habit formation, and peer support to convert knowledge into sustainable healthy behaviors.

Boundaries of the Inquiry:

While this study sheds light on the connection between obesity and physical activity among physical education students, it is important to acknowledge its limitations. Due to the cross-sectional design of the research, correlations can be identified, but causation cannot be established between physical activity and obesity; thus, longitudinal studies are necessary to evaluate the direction and strength of this relationship over time. Such studies are recommended. Additionally, the generalizability of the findings to other academic disciplines is limited by the fact that the sample was drawn from a single department with a predominantly male demographic (79.2%). This restricts applicability to other fields, universities, or more diverse groups. Another limitation is the reliance on self-reported data for body mass

index (BMI) and physical activity levels, which may introduce memory bias and social desirability bias. Future research should employ objective methods such as accelerometers and direct anthropometric measurements to enhance accuracy and reliability.

Recommendations:

A variety of strategies are proposed to address the identified limitations and encourage healthy lifestyle habits among children. The promotion of lifelong wellness begins at the policy and institutional levels; therefore, universities should integrate structured physical activity into their curricula and invest in improved sports facilities that prioritize safety and accessibility. They should also develop comprehensive wellness programs that include annual health screenings, awareness initiatives, and preventive education. Incorporating behavioral health courses that focus on nutrition, stress management, and goal-setting techniques like SMART can aid students in understanding holistic health better, particularly in relation to instructional and curricular reforms. Furthermore, creating physical education programs that cater to different body types, fitness levels, and interests can foster inclusivity and a more supportive environment. Ultimately, employing knowledgeable educators and healthcare professionals can enhance student support systems.

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