

**RESEARCH PAPER****Empowering Female University Students by improving Body Shape and Augmenting Body Image through Varsity Sports****¹Ayesha Khalid, ²Dr. Asif Ali* and ³Fariq Ahmed**

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***Corresponding Author:** asif.ali@gcu.edu.pk**ABSTRACT**

The concerns of body shape and body image have appeared as largely prevalent phenomena globally. Hence, this study was aimed at exploring the intricate relationship between body shape, body image and sports participation among female university students. The study consisted of 240 female's sample: 120 athletes and 120 non-athletes from 6 different universities of Lahore. The age range of the sample was 19 to 25 years. The data collection method was based on personal information, IPAQ and BSQ16B. The findings revealed that female athletes exhibited lower BMI values, better body shape and more favorable perceptions of their body image due to continuous engagement in sports participation as compared to their counterparts. These findings advance the proposition that sports participation may improve body shape and body image perceptions among female university students. Lastly, the policy makers in higher education settings should include sports participation as a mandatory approach for female students.

KEYWORDS: BMI, Body Image, Body Shape, Female University Students, Varsity Sports**Introduction**

Body image concerns have appeared as a largely prevalent phenomenon among the young female university students. The way in which an individual portrays his own perception of seeing the functionality and appearance of his own body can be regarded as body image (Cohane & Pope Jr, 2001). However, in females it is referred as a subjective perception of their own attitude towards their physical appearance. Body image includes both aesthetic aspects such as capabilities and visual appearance of the body (Stapleton, Crighton, Carter, & Pidgeon, 2017). On the other hand, negative body image is very common among female university students. This may detrimentally influence mental well-being, causing reduced self-esteem and heightened anxiety, potentially leading to depression (Curtis & Loomans, 2014). Yet to evaluate the exact impact of body image on students, the examination of its prevalence rates is necessary.

Globally, researchers emphasize the alarming prevalence of body image issues among university students, attributing them to societal pressures and unrealistic beauty standards. These concerns extend beyond aesthetics, adversely affecting mental health and academic performance (Zawawi, 2014). To tackle this, scholars argue that universities must prioritize mental health support, implement body-positive initiatives, and foster a culture of inclusivity (Lowery et al., 2005). The consensus is that body image among female university students reflects an internalized perception of external appearance. Surveys across North America, Europe, and developed countries, including South Asia, report a surge in appearance dissatisfaction, ranging from 23% to 56% for

females (Heather et al., 2021). However, body image may be enhanced by improving body shape that may ultimately boost mental health.

Additionally, appearance facet has been one of the most dominant factors that has been associated with body image in the past researches (Vani, Murray, & Sabiston, 2021). Body shape can be defined as an external structure of physique that encompasses height, weight and proportions of body mass (Ng, Lin, & Ng, 2021). It is a multifaceted feature of one's physical identity, that may be influenced by lifestyle choices and some genetic elements. However, there are several societal factors and individual experiences that form or shape the correlation between body image and body shape. Additionally, body image and body shape are also directly proportional to each other (Frederick & Reynolds, 2021). Hence, the development of negative and positive body image, to some extent, might depend on how an individual sees or rates their own body shape.

Whereas, to assess body shape and overall health of the individuals, BMI emerges as a valuable tool. BMI can be defined as metric that is comprised of numerical values to assess body shape (T. S. Kim et al., 2021). The weight and height of the individual is used in this regard to derive a numerical value that is further categorized into different weight categories (Jan & Weir, 2021). However, BMI is unable to directly measure the body fat percentage even after being a convenient way to assess body shape. It is just utilized to generally define the health of the body through body shape assessment (Maalin et al., 2021). Furthermore, body shape plays a crucial role in the fields of fitness evaluation and health assessment as it is a measurable and vital aspect of human anatomy.

Research consistently shows that individuals with negative body views may be more concerned about their body shape. Exercise, apart from its physical benefits, has been found to improve mood and boost energy (Forrest & Stuhldreher, 2007). Surprisingly, despite the numerous health advantages associated with regular physical activity or sports participation, a substantial portion of the population overlooks its inclusion in daily routines (Conroy & Berry, 2017). Moreover, a positive body image is linked to enhanced academic outcomes among university students, as it aids in stress management through physical activity (Gillen, 2015). (J.-H. Kim & McKenzie, 2014). Conversely, neglecting stress management through physical activity may lead to increased stress and a decline in academic achievements.

Engaging in sports and exercise has been associated with the development of positive characteristics such as self-confidence, positive mood, and emotional well-being (J.-H. Kim & McKenzie, 2014). Athletes, despite potentially harboring negative body perceptions, often exhibit lower BMI values, more positive body image perceptions, and higher levels of physical activity compared to non-athletes (Talleyrand, Gordon, Daquin, & Johnson, 2017). These differences have practical implications for both physical and psychological well-being. The complex interplay between sports participation, BMI, and body image suggests that perceptions are influenced by factors beyond these measures alone (Taylor, Sallis, & Needle, 1985).

Hence to investigate the influence of sports participation on body shape and body image perceptions of female university students was the primary objective of this study. This study also aims to examine how body image perceptions affect self-esteem and overall mental health among university students. Therefore, by comparing BMI, body image perceptions, and physical activity levels, the findings may ensure if regular engagement in sports participation contributes to more positive body image among female athletes than in non-athletes. Future studies in this field can provide valuable insights to promote positive body image perceptions. Furthermore, this study also has the potential to contribute positively to the overall well-being of female students globally.

Literature Review

Previous studies have highlighted the fact that those individuals who perform regular physical exercise tend to have more favorable body image perceptions compared to non-exercisers (Zabinski, Calfas, Gehrman, Wilfley, & Sallis, 2001). However, the unique experiences of female students have often been overlooked in this context. Female students face a complex interplay of societal pressures to meet attractiveness ideals which can impact their body image and self-perception. A study conducted on female athletes mentioned that one proposed solution to improve body image is through exercise (Kosteli, Van Raalte, Brewer, & Cornelius, 2014).

Another study conducted on body image perceptions specifically focused on comparing students who are athletes with those who are not athletes (Tariq, 2018). A total of 160 participants, evenly split between athletes and non-athletes, were selected from various educational institutions in Lahore. The study assessed participants' perceptions of their own body image using the Body Shape Questionnaire, a widely accepted instrument for measuring body image perception. Simultaneously, a study conducted to assess the relation between body image and elite female athletes indicated a positive relation between the two (Kantanista et al., 2018). It also acknowledged the multifaceted pressures, encompassing both sociocultural and sport-specific influences, that female athletes confront regarding their weight, physique, and appearance. These pressures often engender body dissatisfaction, characterized by negative thoughts and emotions related to one's body. Importantly, the study recognizes that an individual's perception of their body may evolve in the way they operate, leading to a dual body image.

A similar study conducted on female exercisers highlighted the prevalence of unrealistic body ideals, primarily a desire for a toned physique with minimal fat (Krane, Waldron, Michalenok, & Stiles-ShIPLEY, 2001). Interestingly, exercisers aimed for a balance between toning and avoiding excessive muscularity. A noteworthy aspect was the delicate equilibrium these women maintained between physical activity and eating, granting themselves permission to eat after exercising but also punishing themselves with exercise after indulgence. Furthermore, athletes' ideal body perceptions were found to be context-dependent, affecting their body satisfaction, mental well-being, and self-presentation. Furthermore, no gender disparities were found in body image perception and disordered eating among the groups. These factors need to be further explored with diverse populations to get a clearer result.

Similarly, another study conducted on university population, highlighted that weight management, appearance, and body dissatisfaction are strong motivators for exercise (Brudzynski & Ebben, 2010). This was particularly seen among those who perceived themselves as overweight. Notably, this study employed open-ended questions, that made it unique from previous research. Furthermore, this study also uncovers the influence of body image on exercise behaviors among non-exercisers. This would help the scholars and researchers to get a deeper understanding of the concept. Overall, this research might also contribute in deeply understanding the challenges individuals face in adopting a physically active lifestyle.

Material and Method

Study Design

This study exercised a cross-sectional study design to investigate the relationships between body shape, body image perceptions and regular engagement in sports participation among female university students.

Sample and Population

The study included 240 sample participants, comprising of 120 female non-athletes and 120 female athletes. Non-athletes were defined as individuals that did not engage in structured athletic activities, while athletes were individuals actively involved in sports. Body image concerns are more prevalent among female population particularly among university students due to being in the early stages of adulthood. Therefore, the population for this study was only female university students. The range of age of the participants were 19 to 25. Data was collected from six distinct universities of Lahore.

Data Collection Instruments

There were three components of data collection instrument including demographic section, IPAQ and BSQ16B. The demographic section of the questionnaire included 14 questions related to university name, department, study program, academic year, age, gender, marital status, sport status, sport name, level of playing sport, height, weight, BMI and resting heart rate.

International Physical Activity Questionnaire (I-PAQ)

The IPAQ, developed by Craig et al. (2017), is a tool used to find out how active a person has been in the past week. It comprises of seven questions regarding the engagement of the individual in various physical activities. To get the final scores or MET value, the total number of minutes an individual spent on each activity are multiplied by total number of days he did it. Based on this MET score, individuals are then categorized into three groups: high, moderate, or low physical activity levels.

Body Shape Questionnaire (BSQ16B)

To measure the body shape of the participants, (BSQ16B) was utilized. This short version of the original instrument, comprising of 16 items was developed by Evans and Dolan (1993). The Cronbach's Alpha score of (BSQ16B) was .92 that suggests a high level of internal consistency to measure body shape.

Data Analysis

To examine the affiliation between body shape, body image and sports participation, linear regression models were employed. The regression models included relevant coefficients (B, β , SE) and statistics (R^2 , F, p-values) as described in the provided text. To compare the differences between athletes and non-athletes, independent sample t-tests were conducted for BMI categorization, global body image questionnaire scores, and sports participation category scores. The magnitude of differences was assessed using effect sizes (Cohen's d).

Results and Discussion

The regression analysis reveals significant findings related to the affiliations between physical activity, (BMI), and body image. Firstly, positive association between physical activity and body image was observed ($\beta = -0.358$, $p < 0.05$). This suggests that as physical activity increases, individuals tend to have more positive body image. However, the relatively low R-squared value of 0.128 indicates that physical activity explains a slight variation in body image, indicating that other factors play a significant role. Second, negative association between physical activity and BMI were also seen ($\beta = -0.182$, $p < 0.05$). This highlights that heightened physical activity levels are associated with lower BMI values.

Table 1
Regression Coefficients of Physical Activity on Body Image of Female Athletes and Non-Athletes

Dependent Variable	Predictor variable	B	B	SE	R ²	P
Body Image	Physical Activity	-6.363	-.358	1.125	.128	.000

The predictor variable was physical activity and outcome was body image, which is dependent variable. The R² value of .128 indicates that the physical activity explained 12.8% variance in the body image with F (1, 218) = 31.997, P < .05. The finding showed that physical activity has significant positive association with body image ($\beta = -.358$, P < .05). However, the findings explore that negative association was significant between physical activity and body image in the sample (See Table 1).

Table 2
Regression Coefficients of Physical Activity on BMI of Female Athlete and Non-Athlete

Dependent Variable	Predictor variable	B	B	SE	R ²	P
Body Image	BMI	10.340	.487	1.254	.238	1.56

The effect of BMI on body image of female athlete and non-athlete. (See Table 3). The predictor variable was BMI and outcome was body image, which is dependent variable. The R² value of .238 indicates that the BMI explained 23.8% variance in the body image with F (1, 218) = 67.952, P < .05. The finding showed that physical activity has significant positive association with body image ($\beta = .487$, P < .05). The results presented in Table 2 suggest that significant correlation existed between BMI and body image. The coefficient (B) of 10.340 suggests that, on average, for every unit increase in BMI, body image increases by approximately 10.340 units. The R-squared value of 0.238 indicates that BMI explains about 23.8% of the variability in body image. In this scenario, the findings specify that both BMI and physical activity play significant roles in shaping athletes and none athletes body image.

Table 3
Regression Coefficients of Sports on BMI of Athletes and non-Athletes.

Dependent Variable	Predictor variable	B	B	SE	R ²	P
BMI	Sports	-.550	-.391	.088	.153	.000

The effect of sports on BMI of the population of 120 female athletes and 120 non-female athletes (See Table 4). The predictor variable was sports and outcome were BMI, which is dependent variable. The R² value of .153 indicates that the sports explained 15.3% variance in the BMI with F (1, 218) = 39.290, P < .05. The finding showed that sports have significant positive association with BMI ($\beta = -.391$, P < .05). The finding yielded that when the different sport exercise increase then the BMI decrease and it will be positive.

Table 4
Regression Coefficients of Sports and BMI on Body Image of Athletes and non-Athletes.

Dependent Variable	Predictor variable	B	B	SE	R ²	P
Body Image	Sports	-13.513	-.453	1.689	.329	.000
	BMI	6.588	.311	1.200	.411	.000

The effect of sports on body image of 120 female athletes and 120 non-athletes (See Table 5). The predictor variable was sports and its outcome was body image, which

is dependent variable. The R^2 value of .329 indicates that the sports explained 32.9% variance in the body image with $F(1, 218) = 107.126, P < .05$. The findings showed that exercise and sports have significant positive association with body image ($\beta = -.453, P < .05$). The finding shows that when we increase our sport than we became more aware about our body image. The effect of BMI on body image of 120 female athletes and 120 non-athletes (See Table 5). The predictor variable was BMI and outcome was body image, which is dependent variable. The R^2 value of .411 indicates that the sports explained 41.1% variance in the body image with $F(1, 218) = 30.126, P < .05$. The finding showed that BMI has significant positive relationship with body image ($\beta = .311, P < .05$). The finding yielded that when BMI is in a better position than our body image will be positive.

Table 5
T-Test Factors of Physical Activity on BMI, Body Shape, of Female Athlete and Non-Athlete

Variables	Athlete		Non-athlete		t (218)	P	Cohen's d
	M	SD	M	SD			
BMI categorization	1.90	.457	2.45	.821	6.268	.000	0.9
Body image global score	20.23	7.119	37.37	16.381	10.350	.000	1.35
Physical activity category	2.97	.180	1.67	.766	-17.96	.000	2.33

The result indicated a significant difference in BMI categorization among athletes and non-athletes (see Table 6), which revealed that the BMI categorization was significantly higher in female non-athlete students ($M = 2.45, SD = .821$) than athlete female students ($M = 1.90, SD = .457$), $t(218) = 6.268, p < .01$. Cohen's d value was $0.9 (< 0.8)$ which demonstrated the high effect size. The result also revealed that body image global score was significantly higher in non-athletes ($M = 37.37, SD = 16.381$) than female athlete students ($M = 20.23, SD = 7.119$), $t(218) = 10.350, p < .01$. The Cohen's d value was $1.35 (< 0.8)$ that represented the high effect size. Result also revealed that physical activity level was significantly higher in athletes ($M = 2.97, SD = 1.80$) as compared to their non-athlete counterparts ($M = 1.67, SD = .766$), $t(218) = -17.96, p < .01$. The Cohen's d value was $2.3 (< 0.8)$ that represented the high effect size.

Discussions

This research aims to examine the intricate affiliation between body image, body shape and exercise among female university students. The results of the study portray that athletes tend to have lower BMI values, more positive body image perceptions due to engaging in higher levels of physical activity or sports participation. Simultaneously, those students who were not involved in any type of physical activity exhibited negative body image perceptions due to higher BMI values. These differences are not only statistically significant but also practically meaningful. For the reason that they highlight the potential positive impact of continuous engagement in sports participation, such as sports participation, on both physical and psychological well-being. Correspondingly, these findings also suggest a positive correlation between BMI values and body image perceptions.

Lower BMI values have always been a symbol of health and well-being (Laxy, Teuner, Holle, & Kurz, 2018). However, it was also observed that due to lower BMI values, body shape of regular exercisers improved that resulted in a positive body image perception. Previously, a study conducted on junior high school students also indicated a positive link between the two (Kantanista, Osiński, Borowiec, Tomczak, & Król-Zielińska, 2015). It might be because of the fact that lower BMI values were linked with a better

body shape that might have impacted positively on the psychological factors of the individuals. The findings underscore the importance of sports participation in maintaining a positive body image among females, irrespective of their BMI. Whether through organized sports or personal fitness routines, both athletes and non-athletes employ diverse exercise patterns to attain their desired body shape and cultivate an idealized self-image (De Beer et al., 2007). Regular sports participation not only contributes to weight management but also positively impacts mental health, promoting a sense of well-being and self-empowerment. This relationship highlights the complex interplay between physical health indicators and psychological well-being.

Furthermore, it was also observed that there were some athletes who were still suffering from body image concerns even after performing regular physical activity. One major cause of negative body image perception among athletes was the formation of eating disorders (Constructed, 2008). Several factors contribute to the development of eating disorders among adolescents, such as societal pressures, cultural influences, economic status, and the media's emphasis on weight loss (McLean & Paxton, 2019). Athletes face various pressures related to performance, weight, nutrition, and social expectations. Female athletes, in particular, often experience these pressures more intensely (de Oliveira et al., 2017). However, further studies in this regard should be conducted on female athletes to figure out the exact cause of negative body image perception among them.

Conversely, physical activity, BMI, and body image were also seemed interconnected with each other. However, the relationships are complex, and factors beyond physical activity and BMI influence body image perceptions. Moreover, the comparison between athletes and non-athletes underscores the potential benefits of sports participation for overall health and well-being. These disparities are not solely confined to statistical significance; they hold practical significance as well, underscoring the potential advantageous impact of regular physical activity, particularly through sports participation, on both physical and psychological well-being. However, further consideration of other factors is needed for a thorough understanding of this relationship.

Conclusion

Lastly, we can conclude that body image is a dynamic concept that is constantly influenced by innumerable factors. The findings revealed that female athletes exhibited lower BMI values, better body shape and more favorable perceptions of their body image due to continuous engagement in sports participation as compared to their counterparts. These findings advance the proposition that sports participation may improve body shape and body image perceptions among female university students. However, it is important to acknowledge that body image perceptions are influenced by abundant factors that extend beyond sports participation and BMI. The relationship between these factors is very important to be explored to have a better understanding of this overall concept. Furthermore, these findings also highlight the potential benefits of engagement in sports participation, for both physical and psychological well-being.

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