Perception of Body Image and Eating Disorders among Malay College Female Athletes

Razali Mohamed Salleh, Nur Nayli Fatihah Rosli, Ahmad Zaki Mohd Rum

Faculty of Sport Science and Recreation, Universiti Teknologi Mara

DOI: https://doi.org/10.51244/IJRSI.2024.11150045P

Received: 20 October 2024; Accepted: 24 October 2024; Published: 25 November 2024

ABSTRACT

Body appearance always has a strong connection with eating disorders and an active lifestyle. Therefore, a study was conducted to investigate the relationship between BMI, eating disorders and the perception of body image among Malay college female athletes. One hundred and sixty respondents aged 18-22 voluntarily participated in the survey. The EAT-26 questionnaire determined eating disorders, while CDRS determined body image perception. A one-way ANOVA and Spearman's rank correlation coefficients were used to determine the difference and relationship between BMI, EAT-26 and CDRS scores. Findings show there were relationships between BMI categories, eating disorders and body image perceptions. BMI positively correlates with dieting, body weight, and eating behaviour but negatively correlates with perception of body image. Perception of body image showed an opposite relationship with eating disorders.

INTRODUCTION

Body image can be described as the appearance and behaviour of a person's body to acquire a better image of the body [1]. An eating disorder is a severe mental illness frequently identified in factors such as body weight, appetite, eating, body image, exercise, or appearance through disordered thinking, emotion, and actions with associated disturbance [2]. Eating disorders include psychiatric disorders related to abnormal or irregular disorders and disturbed feeding habits [3]. For specific groups, such as models, athletes, and dancers, the incidence of eating disorders seems far greater [4]. According to [5], young people are at higher risk for eating disorders, particularly college students. Research on university athletes has detected meal-skipping patterns, poor energy and nutrient intake, and low nutritional awareness levels [6].

Previous research has shown that athletes showed a greater desire to attain and preserve ideal bodies than non-athletes. Athletes are more unhappy than non-athletes with their bodies [7]. College students are one of the populations impacted by problems associated with body image, including dissatisfaction with body image, in which females were generally more concerned with body weight and body shape than males [8]. Thus, there is no wonder that females show more incidence of eating disorders than males. Eating disorders among college students were more severely biased toward females, with a 3:1 female-to-male ratio [9]. An athlete is usually portrayed as having positive health, well-being, fitness, body image, and self-esteem associated with an active and healthy lifestyle. However, the competition and demands of their sports make the athletes, especially young ones, like to compare themselves to their peers, which could lead them to use various strategies, willing to do anything attitude, including changing in body weight and appearance, to meet and surpass the demands of sports [10].

It is concerning that over 50% of Malaysians reported symptoms of eating disorders [11]. A study reported that 13.9% of Malaysian university students, 51% females, showed probable eating disorders [5]. Athletes are more likely than non-athletes to have unique behavioural and psychological characteristics related to eating disorders [12]. Eating disorder rates among athletes tend to rise from 6% to 45% for female athletes and 0% to 19% for male athletes [13]. In university, eating disorder symptoms intensify as students need to

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI | Volume XI Issue XV October 2024 | Special Issue on Public Health

adjust to new, challenging conditions and glorify campus young and wild lifestyle leading to eating disorder behaviour [14].

METHODOLOGY

One hundred sixty college Malay female athletes voluntarily participated in the study. Demographic data such as age, health status, year of tertiary education, study course and year of sports participation were collected. Height and body weight were recorded in the questionnaires to determine the body mass index (BMI). BMI classification was used to categorize underweight (<18.5), normal (18.5-24.9), and overweight (≥25.0) classes based on the WHO classification [15]. The participants also completed the PAR-Q form (ACSM, 2013) to confirm their activity in sports. All respondents were still active in sports when the survey was conducted, and they were free from significant injury and declared themselves healthy and fit. Two questionnaires of Eating Attitude Test 26 (EAT-26) and Contour Drawing Rating Scale (CDRS) were given to respondents to answer. The study was approved by the research ethics committee of Universiti Teknologi MARA (FERC/05/2023/(PG/MR/ 00223)).

The EAT-26 questionnaire was used to screen for eating disorder risk [16]. It consists of 26 question items from three subscales: dieting (13 items), bulimia and food preoccupation (6 items), and oral control subscales (7 items). The subscale scores were computed by summing all items to get the overall scores. A score over 20 indicates high concern about dieting, body weight and problematic eating behaviours. Additional five questions regarding eating behaviour were also disseminated to identify eating problems. The CDRS questionnaire was adapted from Thompson and Gray (1995) [17] to assess participants' perceptions of body images with the reliability of r=0.78. In brief, participants would indicate which picture (range from 1 = very thin to 9 = very overweight) they thought most likely represented them and the one they intended to be, in which the difference scale between the latter and former was computed.

One-way ANOVA and multiple comparison tests determined mean differences between different BMI-classified groups. Spearman's rank correlation coefficient was used to determine the correlation between the perception of body image and BMI, the correlation between eating disorder and BMI, and the correlation between the perception of body image and eating disorder. All statistical analyses were determined using SPSS version 20 (IBM Corporation), with the significance value set at 0.05.

RESULTS AND DISCUSSION

Table 1 shows the demographic characteristics data of the respondents. The average age of respondents was 20.0±1.3, ranging from 18-22. Most respondents (82.5%) were second and third-year students, whereas the rest were the first year. All respondents have been involved in sports for over five years since secondary school. The average height was 1.60±0.08 m, and the weight was 57.3±12.0 kg. The BMI of respondents was 22.2±4.1 kg/m², with 58.8% perceiving themselves as normal weight, 16.9% underweight and 24.4% overweight. They had consistent training volumes for at least two months and trained for endurance exercises for a minimum of 5.5±0.9 hours per week.

The average EAT-26 score of all respondents was 31.3±15.7. The score based on weight category was 37.0±16.9 for underweight, 32.6+15.3 for normal weight, and 24.2±13.7 for overweight (Table 2). There was a statistically significant difference between groups as determined by one-way ANOVA ($F(2,157) = 5.468$, $p = 0.005$). The Tukey HSD test shows a statistically significant difference in EAT-26 score between the underweight and overweight categories ($p = 0.004$). Respondents reported a prevalence of binge eating (57.5%), self-vomiting (33.1%), laxatives, diet pills or diuretics used (26.3%), extreme exercise (10.6%), and rapid weight loss (21.9%). Overweight respondents recorded the highest incidence of all eating behaviour problem categories compared to normal and underweight groups (Table 2).

In the body image perception survey, the CDRS score of all respondents was -1.0±1.9, indicating a tendency for female student-athletes to become thinner. Fig. 1 shows the distribution of the CDRS scores, indicating

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI | Volume XI Issue XV October 2024 | Special Issue on Public Health

that about 77.5% of respondents were dissatisfied with their body image. When compared between BMI groups, the ANOVA analysis shows a statistically significant difference in CDRS scores between groups ($F(2,157) = 28.692$, $p = 0.000$). Tukey HSD shows the scores were also different across all BMI groups ($p=0.000$).

EAT-26 scores were positively correlated with BMI ($r = 0.208$, $n = 160$, $p = 0.008$), indicating that as BMI increases, the prevalence of eating disorders also increases. BMI was negatively correlated with perception of body image ($r = -0.614$, $n = 160$, $p = 0.000$), indicating that female athletes with lower BMI tended to have greater concerns about body image. When EAT-26 scores were matched with CDRS scores, they were negatively correlated (($r = -0.236$, $n = 160$, $p = 0.003$), meaning female athletes with lower EAT-26 scores indicate lower concern against body image. In other words, one without eating disorders did not show body image concerns.

The present study shows that the EAT-26 score of all weight category groups was higher than 20, indicating a high level of concern about diet, body weight, and problematic eating behaviours. When compared between groups, the eating disorders perception between the underweight and normal groups was not statistically different. This finding is similar to a previous finding, where the underweight and normal BMI subjects showed similar eating disorder perceptions [18]. On the other hand, underweight and overweight respondents showed different perceptions of eating disorders. The type of eating disorders across different weight groups probably varied more by weight perception than by weight status. Groups with overweight and obesity had distorted eating behaviours for dieting and bulimic behaviours, while normal-weight and underweight females had problematic eating behaviours for restrictive oral control behaviours associated with anorexia nervosa [19].

Attempting to lose weight and maintaining thinness was strongly linked to eating disorders. The high levels of eating disorder-related symptoms could be due to a combination of the social influences, diet, and lifestyle of college students [19]. Young female adults are shown to be more active in sports, to have tight diets, and to try to eat healthily than their male counterparts. However, these young ladies defined a healthy diet in diverse ways, leading to misconceptions of healthy eating, such as ruminations [20]. An eating disorder is a severe psychiatric condition that affects cognitive function, judgment, and emotional stability and restricts daily activities in the younger generation. People who suffer from an eating disorder also have a body image problem, defined as an inability to recognize a shift in their body weight [21].

A previous study reported that a group of women showed a positive correlation between BMI, levels of body dissatisfaction, and levels of eating pathology [22], similar to our study's findings. Body dissatisfaction was believed to mediate the relationship between BMI and eating pathology, and the associations were not attenuated by sexual status [22]. Young adults are self-conscious about their physical appearance and aesthetic worth. They are easily distracted by their body image perception and desire to be as slender as international icon models. People with a positive or fulfilling body image are happy and comfortable with their bodies. In contrast, those with a negative or unsatisfactory body image are disgruntled or hate how they look and perceive their bodies [23]. Our study shows that 77.5% of female student-athletes were dissatisfied with their body appearance, and 56.2% of those dissatisfied desired to be thinner. Our findings were similar to those reported in a previous study [24].

Body image issues and eating disorders are major health issues that can affect anyone throughout their lifetime. Positive traits of body image play essential roles in the quality of life, such as the healthy lifestyle of individuals [25]. Our data shows a significant relationship between eating disorders and body image perception in female college students, in line with a previous study [26]. Body shape concerns were significant predictors of high-risk eating behaviour and low self-esteem [27].

Many reports stated correlations between the perception of body image and eating disorders among athletes. Male athletes had lower body image dissatisfaction than females, whereas normal-weight athletes had higher body image dissatisfaction than underweight [7]. Sports necessitate intensive training and exercises, which

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI | Volume XI Issue XV October 2024 | Special Issue on Public Health

result in most athletes maintaining an optimal body shape and, as a result, having a favourable perception of body image [28].

Fostering healthy body image perceptions among female college students is essential, as they can be role models on campuses and influence others, especially students, on healthy lifestyles. The findings may address the need to raise awareness of good eating habits and healthy physical activity among college females to improve body size, shape perception, and satisfaction. In conclusion, our finding shows that in all weight categories among Malay female student-athletes, there was a prevalence of body image concerns that can lead to concerned eating behaviours. More studies, especially clinical approaches, are suggested to discover the significant aetiology of the issues.

TABLE 1 DEMOGRAPHIC DATA OF MALAY FEMALE COLLEGE ATHLETES

Characteristics	Mean ± SD	Note
Age (year)	20.0±1.3	Range 18-22
Height (m)	1.60±0.08	
Weight (kg)	57.3±12.0	
BMI (kg/m^2)	22.2±4.1	<18.5 (16.9%) 18.5-24.9 (58.8%) ≥25.0 (24.4%)
Training hours per week	5.5±0.9	

TABLE 2 EAT-26 SCORES, EATING BEHAVIOUR OF MALAY FEMALE COLLEGE ATHLETES

Descriptions	Respondent category			
	All (n=160)	Underweight	Normal	Overweight
EAT-26 scores	31.3±15.7	37.0±16.9*	32.6±15.3	24.2±13.7*
Binge eating (%)	57.5	53.8	55.8	64.1
Self-made vomiting (%)	33.1	23.1	33.7	38.5
Laxatives, diet pills or diuretics used (%)	26.3	19.2	27.4	28.2
Exercised more than 60-min a day (%)	10.6	7.7	8.4	17.9
Losing 20 lb or more in the past six months (%)	21.9	11.5	23.2	25.6
CDRS difference	-1.0±1.9	-1.2±1.3	-0.9±2.0	-1.3±2.2

*p=0.004

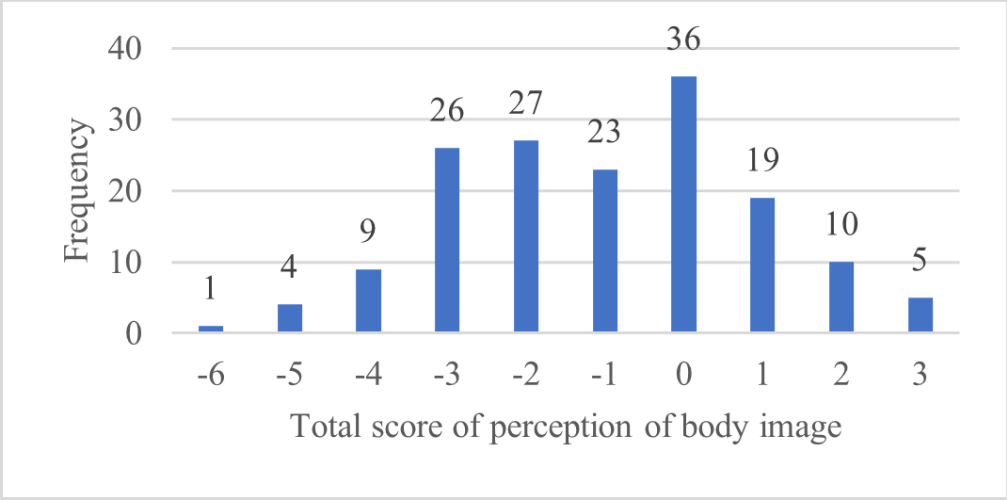

Fig. 1 Distribution of CDRS score of Malay college student-athletes

REFERENCES

1. Cash, T.F., (2012). Encyclopedia of Body Image and Human Appearance. Volume 1. Academic Press; London, UK: Cognitive-behavioral perspectives on body image; pp. 334– 342.
2. Balasundaram, P., Santhanam, P., (2024). Eating Disorders. [Updated 2023 Jun 26]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing.
3. Garcia, S.C., Mikhail, M.E., Keel, P.K., Burt, S.A., Neale, M.C., Boker, S., Klump, K.L., (2020). Increased rates of eating disorders and their symptoms in women with major depressive disorder and anxiety disorders. *Int J Eat Disord.* 53(11):1844-1854.
4. Joy, E., Kussman, A., Nattiv, A. (2016). Update on eating disorders in athletes: A comprehensive narrative review with a focus on clinical assessment and management. *Br J Sports Med*. 50(3):154-62.
5. Chan, Y.L., Samy, A.L., Tong, W.T., Islam, M.A., Low, W.Y. (2020). Eating disorder among Malaysian university students and its associated factors. *Asia Pac J Public Health*. 2020 Sep-Oct;32(6-7): 334-339.
6. Zeballos, E., Todd, J.E. (2020). The effects of skipping a meal on daily energy intake and diet quality. *Public Health Nutr*. 23(18):3346-3355.
7. Zaccagni, L., Gualdi-Russo, E. (2023). The impact of sports involvement on body image perception and ideals: A systematic review and meta-analysis. *Int J Environ Res Public Health*. 20(6): 5228.
8. Olatona, F.A., Aladelokun, B.F., Adisa, O.O., Ogunyemi, A.O., Goodman, O.O. (2023). Body image dissatisfaction, nutritional status and weight control strategies among university undergraduates in Lagos: a descriptive cross-sectional study. *Pan Afr Med J*. 45:112.
9. Chin, Y.S., Appukutty, M., Kagawa, M., Gan, W.Y., Wong, J.E., Poh, B.K., Mohd Shariff, Z., Mohd Taib, M.N. (2020). Comparison of factors associated with disordered eating between male and female Malaysian university students. *Nutrients*. 12(2):318.
10. Pilar, P.M., Rafael, M.C., Félix, Z.O., Gabriel, G.V. (2019). Impact of sports mass media on the behavior and health of society: A systematic review. *Int J Environ Res Public Health*. 16(3):486.
11. Chua, S.N., Fitzsimmons-Craft, E.E., Austin, S.B., Wilfley, D.E., Taylor, C.B. (2022). Estimated prevalence of eating disorders in Malaysia based on a diagnostic screen. Int J Eat Disord. 2022 Jun;55(6):763-775.
12. Stoyel, H., Shanmuganathan-Felton, V., Meyer, C., Serpell, L. (2020). Psychological risk indicators of disordered eating in athletes. *PLoS One*. 15(5):e0232979.
13. Bratland-Sanda, S., Sundgot-Borgen, J. (2013). Eating disorders in athletes: overview of prevalence, risk factors and recommendations for prevention and treatment. *Eur J Sport Sci*. 13(5):499-508.
14. Mallaram, G.K., Sharma, P., Kattula, D. *et al.* (2023). Body image perception, eating disorder behavior, self-esteem and quality of life: a cross-sectional study among female medical students. *J Eat Disord* 11: 225 (2023).
15. WHO Expert Consultation. Appropriate body-mass index for Asian populations and its implications for policy and intervention strategies. Lancet. Jan 10 2004;363(9403):157-63.
16. Garner, D.M. and Garfinkel, P.E. (1979). The eating attitudes test. an index of symptoms of anorexia nervosa. *Psychol Med*. 9: 273-279.
17. Thompson, M. A., Gray, J. J. (1995). Development and validation of a new body-image assessment scale. *J Personality Assessment*. 64(2), 258–269.
18. Yuvarani, G., Sumaiya, B.J., Shafeen, Z.S., Ayisha, S.A. (2017). Relationship between eating disorder and body mass index in physiotherapy students. *Intern J Curr Adv Res*. 6: 7436-7438.
19. Alkazemi, D., Zafar, T.A., Ebrahim, M., Kubow, S. (2018). Distorted weight perception correlates with disordered eating attitudes in Kuwaiti college women. *Int J Eat Disord*. 51(5): 449-458.
20. Smith, K.E., Mason, T.B., Lavender, J.M. (2018). Rumination and eating disorder psychopathology: A meta-analysis. *Clin Psychol Rev*. 61: 9-23.
21. Sogari, G., Velez-Argumedo, C., Gómez, M.I., Mora, C. (2018). College students and eating habits: a study using an ecological model for healthy behavior. *Nutrients*. 10(12): 1823.

22. Jones, C.L., Fowle, J.L., Ilyumzhinova, R., Berona, J., Mbayiwa, K., Goldschmidt, A.B., Bodell, L.P., Stepp, S.D., Hipwell, A.E., Keenan, K.E. (2019). The relationship between body mass index, body dissatisfaction, and eating pathology in sexual minority women. *Int J Eat Disord*. 52(6): 730-734.
23. Merino, M., Tornero-Aguilera, J.F., Rubio-Zarapuz, A., Villanueva-Tobaldo, C.V., Martín-Rodríguez, A., Clemente-Suárez, V.J. (2024). Body perceptions and psychological well-being: a review of the impact of social media and physical measurements on self-esteem and mental health with a focus on body image satisfaction and its relationship with cultural and gender factors. *Healthcare (Basel)*. 12(14): 1396.
24. Divecha, C.A., Simon, M.A., Asaad, A.A., Tayyab, H. (2022). Body image perceptions and body image dissatisfaction among medical students in Oman. *Sultan Qaboos Univ Med J*. 22(2): 218-224.
25. Baceviciene, M., Jankauskiene, R., Balciuniene, V. (2020). The role of body image, disordered eating and lifestyle on the quality of life in Lithuanian university students. *Int J Environ Res Public Health*. 17(5): 1593.
26. Manaf, N.A., Saravanan, C., Zuhrah, B. (2016). The prevalence and inter-relationship of negative body image perception, depression and susceptibility to eating disorders among female medical undergraduate students. *J Clin Diagn Res*. 10(3): VC01-VC04.
27. Kapoor, A., Upadhyay, M.K., Saini, N.K. (2022). Relationship of eating behavior and self-esteem with body image perception and other factors among female college students of University of Delhi. *J Educ Health Promot*. 11: 80.
28. Festino, E., Papale, O., Di Rocco, F., De Maio, M., Cortis, C., Fusco, A. (2024). Effect of physical activity behaviors, team sports, and sitting time on body image and exercise dependence. *Sports*. 12(9): 260.