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Students' Perception Of The Effectiveness Of Running And Walking In Weight Loss Efforts

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ABSTRACT

Obesity and overweight have become significant health problems among university students due to sedentary lifestyles, low physical activity, and unhealthy dietary habits. Aerobic activities such as running and walking are widely recognized as effective strategies for weight loss because they increase energy expenditure and improve metabolic function. However, the effectiveness of these activities is not only influenced by physiological factors but also by individual perceptions, which may affect exercise participation and adherence. Therefore, this study aimed to analyze the perceptions of students from the Department of Sports Science at Universitas Negeri Semarang regarding the effectiveness of running and walking in weight loss efforts. This study employed a descriptive quantitative design using a survey approach. A total of 61 students were selected through purposive sampling techniques. Data were collected using a Likert-scale questionnaire designed to measure students' perceptions of running and walking effectiveness for weight loss. The collected data were analyzed using descriptive statistics, including mean scores and standard deviations. The results revealed that students' perceptions of running (33.08 ± 5.57) and walking (33.13 ± 4.62) were categorized as moderate. Most respondents demonstrated moderate levels of perception, indicating that their understanding of the effectiveness of both activities remains limited. Furthermore, students tended to perceive running and walking similarly, suggesting that both activities were viewed as relatively equal in supporting weight loss efforts. In conclusion, although aerobic exercise has been scientifically proven to support weight reduction, students' perceptions regarding its effectiveness remain moderate. These findings indicate a gap between theoretical knowledge and practical perception, highlighting the need for more applicable and evidence-based educational strategies to improve students' understanding of physical activity and weight management.

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INTRODUCTION

Obesity and overweight have become major global public health challenges that continue to increase significantly across all age groups. According to the World Health

Organization, the prevalence of obesity among adults has more than doubled since 1990, while obesity rates among adolescents have increased nearly fourfold. Excess body weight is strongly associated with unhealthy lifestyles characterized by low physical activity levels, prolonged sedentary behavior, and excessive consumption of high-calorie foods, all of which contribute to the increased incidence of cardiovascular disease, hypertension, type 2 diabetes mellitus, metabolic syndrome, and psychological disorders (WHO, 2025). The growing prevalence of obesity among young adults and university students has become a serious concern because this developmental phase represents a critical period for establishing long-term lifestyle habits and health behaviors.

In Southeast Asia, the prevalence of overweight and obesity among university students has also shown a substantial increase over the last decade. Lifestyle transitions during university life, including academic pressure, irregular sleep patterns, limited physical activity, and increased fast-food consumption, contribute significantly to unhealthy body weight gain (APCPS, 2021). University students frequently experience decreased participation in structured exercise due to time constraints and technological dependence, resulting in reduced energy expenditure and lower physical fitness levels. Among students, insufficient physical activity is considered one of the most influential determinants of weight gain and obesity development (Guthold et al., 2020).

Regular physical activity has consistently been recognized as one of the most effective non-pharmacological strategies for weight management and obesity prevention. Aerobic exercise, particularly running and walking, is widely recommended because it is affordable, accessible, practical, and easy to perform without specialized equipment. Running is generally associated with higher exercise intensity and greater caloric expenditure, thereby contributing significantly to fat oxidation and metabolic enhancement (Swift et al., 2018). Conversely, walking is commonly perceived as a lower-intensity activity, although evidence suggests that regular walking performed consistently can substantially improve energy expenditure, cardiovascular fitness, and body composition (Shady et al., 2017). The American College of Sports Medicine emphasizes that both running and walking can effectively support weight reduction when performed with appropriate exercise frequency, duration, and intensity (ACSM, 2021).

Despite the recognized physiological benefits of aerobic exercise, successful weight management is not solely determined by physiological mechanisms. Psychological aspects, particularly individual perception, play a crucial role in influencing exercise participation and adherence. Perception refers to the process through which individuals interpret and organize sensory information to construct meaningful understanding and behavioral responses (Davidoff, 1981). In the context of physical activity, perceptions regarding the effectiveness of exercise influence motivation, exercise preferences, consistency, and behavioral commitment. According to Icek Ajzen through the Theory of Planned Behavior, beliefs regarding the outcomes of a behavior strongly affect behavioral intention and actual practice (Ajzen, 2020). Consequently, students' perceptions concerning the effectiveness of running and walking may influence their willingness to engage in these activities for weight management purposes.

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Among university students, running is frequently perceived as more effective for weight loss due to its higher intensity and faster caloric expenditure, whereas walking is often underestimated because of its lower exercise intensity. However, scientific evidence demonstrates that walking performed consistently with sufficient duration and frequency can produce meaningful reductions in body weight and body fat percentage comparable to moderate-intensity exercise programs (Setiawan et al., 2020). These differences in perception may affect exercise selection and ultimately influence the success of weight management interventions among students.

This issue becomes particularly interesting within the population of Sports Science students. Students in this academic field possess formal educational backgrounds related to exercise physiology, biomechanics, training principles, sports nutrition, and health science. Theoretically, this academic exposure should contribute to more evidence-based perceptions regarding physical activity and weight management. Nevertheless, knowledge acquisition does not always translate into accurate beliefs or consistent behavior because perceptions are also shaped by personal experiences, environmental influences, social norms, and exercise habits (Kandi et al., 2023). Therefore, investigating the perceptions of Sports Science students toward running and walking effectiveness is important for understanding whether scientific knowledge aligns with exercise beliefs and behavioral preferences.

Previous studies concerning physical activity and weight loss have predominantly focused on physiological and metabolic outcomes. Numerous investigations have demonstrated that running significantly improves energy expenditure, cardiorespiratory fitness, lipid metabolism, and fat oxidation (Oppert et al., 2021). Running has also been associated with greater reductions in body mass index (BMI), waist circumference, and body fat percentage due to its moderate-to-vigorous exercise intensity (Lee et al., 2019). Similarly, several studies have confirmed that regular brisk walking contributes positively to weight management, cardiovascular health, and metabolic regulation, especially among individuals with low exercise tolerance or sedentary lifestyles (Murtagh et al., 2021).

Contemporary research has increasingly emphasized the importance of exercise adherence and behavioral sustainability in long-term weight management. Studies indicate that moderate and enjoyable physical activities such as walking often produce higher long-term adherence rates compared to vigorous exercise modalities because they are perceived as safer, less physically demanding, and easier to integrate into daily routines (Rhodes et al., 2020). Furthermore, psychological enjoyment and perceived exercise effectiveness have been identified as major determinants influencing participation in physical activity programs (Teixeira et al., 2021).

Several recent investigations have explored psychological factors associated with exercise participation, including motivation, self-efficacy, and exercise attitudes. Research conducted by Kwasnicka et al. (2019) revealed that positive exercise perceptions significantly improve behavioral consistency and physical activity adherence. Similarly, Ntoumanis et al. (2021) demonstrated that individuals who believe in the effectiveness of physical activity are more likely to maintain regular exercise

behaviors over time. Nevertheless, these studies generally focus on physical activity participation in broader populations rather than specifically examining perceptions of exercise modality effectiveness for weight loss.

Within the Indonesian context, studies related to physical activity and obesity management among university students have primarily emphasized exercise intervention outcomes, nutritional habits, and fitness assessments. Several national studies reported that aerobic exercise programs significantly improve body composition and physical fitness among students (Prasetyo et al., 2020; Rahman et al., 2022). However, limited attention has been directed toward understanding students' cognitive perceptions regarding the comparative effectiveness of running and walking as weight-loss strategies.

Although previous literature has extensively discussed the physiological effectiveness of running and walking, several important gaps remain unresolved. First, prior studies predominantly focus on objective physiological outcomes such as caloric expenditure, VO_2max improvement, body fat reduction, and metabolic adaptation, while psychological dimensions particularly perception remain underexplored. Exercise effectiveness is often interpreted solely through physiological measurements without considering how individual beliefs and perceptions influence exercise behavior and adherence.

Second, previous studies commonly investigate general populations, overweight adults, or clinical groups, whereas research involving Sports Science students remains very limited. This population represents a unique academic group because they possess formal knowledge regarding exercise science and health promotion. Understanding whether scientific education influences perceptions regarding exercise effectiveness is therefore academically important.

Third, limited studies directly compare perceptions of running and walking specifically in relation to weight loss effectiveness. Existing literature often evaluates physiological outcomes separately rather than examining how individuals cognitively interpret the comparative benefits of these exercise modalities. As a result, the relationship between academic knowledge, exercise perception, and behavioral preference remains insufficiently understood.

Fourth, research examining the potential discrepancy between scientific knowledge and actual perception among students remains scarce. Although Sports Science students are expected to demonstrate evidence-based understanding of physical activity, perception formation may also be influenced by social environment, cultural beliefs, media exposure, and personal exercise experiences. This potential inconsistency between theoretical knowledge and subjective perception constitutes an important research problem that requires empirical investigation.

Based on the identified problems and research gaps, this study aims to analyze the perceptions of Sports Science students at Universitas Negeri Semarang regarding the effectiveness of running and walking for weight loss. Specifically, this research seeks to identify students' beliefs, preferences, and understanding concerning the comparative effectiveness of both aerobic activities in reducing body weight. The novelty of this study lies in its focus on the psychological dimension of exercise effectiveness, particularly

students' perceptions rather than purely physiological outcomes. In addition, this research specifically investigates Sports Science students who possess formal academic exposure to exercise science, making them a unique and theoretically informed population. To the best of the authors' knowledge, limited previous studies have explored the knowledge–perception relationship among Sports Science students concerning running and walking effectiveness for weight management.

Furthermore, this study contributes theoretically by integrating concepts from exercise physiology, health psychology, and behavioral science in understanding physical activity preferences. Practically, the findings are expected to provide important implications for developing evidence-based educational strategies that align scientific knowledge, perception, and exercise behavior among university students. Improved understanding of students' perceptions may support the design of more effective physical activity promotion programs aimed at obesity prevention and healthy lifestyle development in higher education environments.

In conclusion, obesity and overweight among university students continue to represent significant public health concerns requiring comprehensive preventive strategies. Although running and walking are scientifically recognized as effective aerobic exercises for weight management, students' perceptions regarding their effectiveness may substantially influence exercise participation and adherence. Existing literature has largely emphasized physiological outcomes while neglecting psychological dimensions, particularly among Sports Science students. Therefore, this study is important for addressing the gap between academic knowledge and exercise perception, while also contributing to the development of more effective health education and physical activity interventions within university settings.

METHODS

This study employed a quantitative approach using a descriptive survey design to examine students' perceptions regarding the effectiveness of running and walking for weight loss. Quantitative descriptive research is widely used to systematically describe social and behavioral phenomena based on empirical data without emphasizing causal relationships or experimental manipulation (Creswell & Creswell, 2018). This approach was considered appropriate because the present study aimed to provide an objective representation of students' perceptions and beliefs concerning aerobic exercise effectiveness in weight management. Descriptive survey methods have frequently been applied in sports science and health behavior research to explore attitudes, perceptions, and behavioral tendencies among university students (Taherdoost, 2022).

This research was conducted in accordance with ethical principles involving human participants. Prior to data collection, respondents were informed about the objectives, procedures, benefits, and voluntary nature of the study. All participants provided informed consent before completing the questionnaire. Participant anonymity and confidentiality were strictly maintained throughout the research process to ensure

ethical compliance and participant protection. Ethical considerations are essential in behavioral and educational research because they enhance data credibility, participant trust, and research integrity (Resnik, 2020).

The study was conducted online using Google Forms as the primary medium for questionnaire distribution. The online survey method was selected to facilitate broader respondent accessibility, increase participation efficiency, and accommodate current technological trends in educational research. Online questionnaires have become increasingly effective for collecting perception-based data due to their flexibility, accessibility, and ability to reduce administrative barriers (Evans & Mathur, 2018). The research subjects consisted of students from the Department of Sports Science at Universitas Negeri Semarang, particularly students from the 2022 cohort. The population of this study included all active students within the Department of Sports Science.

The sampling technique used in this research was purposive sampling. This technique involves selecting participants based on predetermined inclusion criteria relevant to the objectives of the study (Campbell et al., 2020). Purposive sampling is commonly used in educational and sports science research when researchers require respondents with specific experiences or characteristics related to the investigated phenomenon. The inclusion criteria established in this study were: (1) students enrolled in the Department of Sports Science class of 2022, (2) students who regularly engaged in physical activity at least two to three times per week, and (3) students who had experience performing running or walking activities as part of weight maintenance or weight reduction efforts. These criteria were designed to ensure that respondents possessed sufficient experience and contextual understanding regarding the investigated exercise modalities.

The primary research instrument was a structured questionnaire developed using a five-point Likert scale consisting of strongly agree, agree, neutral, disagree, and strongly disagree response categories. Likert-scale instruments are widely recognized as effective tools for measuring attitudes, perceptions, and behavioral tendencies in social and educational research (Joshi et al., 2015). The questionnaire aimed to assess students' perceptions regarding the comparative effectiveness of running and walking for weight loss. In addition to closed-ended questions, several limited open-ended questions were included to strengthen and contextualize the quantitative findings. Open-ended responses provide complementary insights that enrich interpretation and improve understanding of respondents' perspectives (Braun & Clarke, 2021).

Instrument validity was evaluated using Pearson's Product Moment correlation analysis to determine the validity level of each questionnaire item. An item was considered valid when the calculated correlation coefficient exceeded the critical value of the correlation table. Validity testing is important to ensure that the instrument accurately measures the intended constructs (Hair et al., 2019). Reliability testing was conducted using the Cronbach's Alpha method with the assistance of IBM SPSS Statistics version 25. The reliability analysis demonstrated high internal consistency,

with Cronbach's Alpha coefficients of 0.863 for the running perception instrument and 0.796 for the walking perception instrument. These values indicate that the instrument possessed acceptable reliability for perception measurement, as reliability coefficients above 0.70 are generally considered satisfactory in behavioral research (Taber, 2018).

The collected data were analyzed using descriptive statistical techniques. Descriptive analysis aims to systematically summarize and present empirical data without conducting inferential hypothesis testing (Mishra et al., 2019). Data analysis procedures included editing, coding, and tabulation processes to classify responses according to predetermined categories. Mean scores and standard deviations were subsequently calculated to determine respondents' perception levels. Perception categories were classified into very poor, poor, moderate, good, and very good based on score distribution criteria adapted from Azwar (2015).

Furthermore, respondents' perception scores were transformed into positive and negative perception categories using T-score conversion procedures. Scores above the mean T-score were categorized as positive perceptions, whereas scores below the mean were categorized as negative perceptions. T-score transformation is frequently utilized in educational and psychological measurement to standardize respondent distributions and simplify categorical interpretation (Field, 2018). Meanwhile, responses obtained from open-ended questions were analyzed descriptively to support and strengthen the quantitative findings, thereby providing a more comprehensive understanding of students' perceptions regarding running and walking effectiveness for weight loss.

RESULTS AND DISCUSSION

Result

This study involved 61 student respondents of the Department of Sports Science, State University of Semarang who met the inclusion criteria. Based on the characteristics of the respondents, all participants were in the age range of 21–23 years and were classified as physically active, with a frequency of sports activities at least 2–3 times a week. This shows that respondents have moderate experience in doing physical activities, especially running and walking as part of weight loss.

The average data on the perception of students of the Department of Sports Science on the effectiveness of running and walking sports in weight loss was obtained after the sample filled out a questionnaire through a Google form link that had been shared through online media. The statements in the questionnaire included the sample knowledge of the variables they wanted to know, namely about what running and walking exercises, the frequency of the sample doing running and walking exercises, the benefits of running and walking in weight loss and about the effectiveness of running and walking in weight loss.

Then from the results of the questionnaire that has been processed using SPSS 25, the average results of the perception of students of the Department of Sports Science towards running and walking sports as a whole are obtained, the following are the results:

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Table 1.
Average Student Perception of Running and Walking Sports

Variable	Perception Score				
	N	Average	Std. Deviation	Minimal	Maximum
Running Sports	61	33.08 ± 5.57	5,57	11	44
Walking Sports	61	33.13 ± 4.62	4,62	14	41

Based on Table 1, the average perception of running (33.08) and walking (33.13) is in the sufficient category, which shows that in general students have a moderate perception of the effectiveness of the two types of sports. To get the frequency distribution results, an assessment category is required first. The categorization of the perception of students of the Department of Sports Science towards running sports is if you get a result of X 24.720. then it falls into the category of "very low". If you get a result of 24.720 – 30.295, it is in the "low" category. If you get a result of 30.295 – 35.869, it is in the "moderate" category. If you get a result of 35.869 – 41.444, it is included in the "high" category. If you get a result > 41.444, it is in the "very high" category

Below is shown in the frequency distribution, the perception data of students of the Department of Sports Science towards running sports in weight loss, in the following table:

Table 2.
Frequency Distribution of Perception of Running Sports

Classification	Score	N	%
Very Low	X ≤ 24.720	4	6.56%
Low	24.720 < X ≤ 30.295	9	14.75%
Moderate	30.295 < X ≤ 35.869	30	49.18%
High	35.869 < X ≤ 41.444	14	22.95%
Very High	X > 41.444	4	6.56%
TOTAL		**61**	**100.00%**

To get the frequency distribution results, an assessment category is required first. The categorization of the perception of students of the Department of Sports Science towards walking sports is if they get a result of X < 26.206. then it is included in the "very low" category If you get a result of 26.206 – 30.823 it is included in the "low" category If you get a result of 30.823 – 35.440, it is included in the "moderate" category. If you get a result of 35.440 – 40.057, it is included in the "high" category. If you get a result > 40.057. Fall into the category "very high".

Below is shown in the frequency distribution, the perception data of students of the Department of Sports Science on walking exercise in weight loss, in the following table:

Table 3.
Frequency Distribution of Perception of Walking Sports

Classification	Score	N	%
Very Low	X ≤ 26.206	2	3.28%
Low	26.206 < X ≤ 30.823	11	18.03%
Moderate	30.823 < X ≤ 35.440	29	47.54%
High	35.440 < X ≤ 40.057	15	24.59%
Very High	X > 40.057	4	6.56%
TOTAL		61	100.00%

The data in Table 2 and Table 3 show that most of the respondents are in the moderate category for both types of sports, both running (49.18%) and walking (47.54%). This indicates that students do not fully have a strong belief in the effectiveness of these two activities in weight loss.

Discussion

The selection of Sports Science students as research subjects was based on the assumption that this group possesses an adequate foundational understanding of physical activity, health, and body management, as well as relatively homogeneous characteristics. Students in this department are both academically and practically required to balance physical performance with academic achievement, making weight management a particularly relevant concern. However, some students still face weight-related challenges stemming from irregular dietary patterns, high activity loads without optimal recovery, and limited understanding of structured weight loss strategies.

The results indicate that students' perceptions of both running and walking as weight management tools were in the moderate category. This finding suggests that although students maintain a generally positive view of these activities, their understanding is not yet comprehensive, and some uncertainty remains regarding the specific conditions under which these activities are most effective. These results point to a gap between theoretical knowledge and applicable understanding, particularly with respect to training principles such as intensity, duration, and frequency.

Empirically, running is one of the most effective aerobic activities for increasing energy expenditure and metabolic rate, including through the mechanism of excess post-exercise oxygen consumption (EPOC), which extends calorie burning beyond the exercise session itself (Jayedi, 2024). Previous research has confirmed that consistent, programmed running has a dose-response relationship with weight loss, in which increased exercise volume correlates with improved body composition (Jayedi, 2024). Aerobic exercise sessions of 20–30 minutes have been shown to be effective in promoting fat oxidation, particularly when performed regularly (Bellicha et al., 2021). Global recommendations also suggest a minimum of 150 minutes of moderate-intensity aerobic activity per week to support weight loss and metabolic health (Jayedi, 2024). The moderate perception observed among students may therefore be attributed to unstructured exercise experiences, including inconsistent frequency, mismatched exercise doses, and the absence of dietary regulation.

Students' perceptions of walking were similarly in the moderate category. Walking is often regarded as a low intensity activity with limited impact on weight reduction, yet evidence consistently indicates otherwise. Higher daily step counts are associated with significant reductions in all cause mortality risk (Paluch et al., 2021). Walking for 30–60 minutes per day can contribute substantially to daily energy expenditure and improve insulin sensitivity (Duvivier et al., 2013), as well as support cardiovascular health (Lavie et al., 2019). These attributes make walking a highly accessible and sustainable component of a weight loss program. The moderate perception scores for walking likely reflect a

limited ability to connect theoretical concepts with real-world application. Students who do not experience measurable changes following walking activities may develop a generalized belief that the activity is less effective, even when the underlying cause is improper implementation rather than the activity itself. This reflects an imbalance among the cognitive, affective, and conative components of perception formation (Kandi et al., 2023).

Notably, the mean perception scores for running and walking were nearly identical (33.08 vs. 33.13), and the category distributions across both activities were similarly proportioned. Students tended to perceive both activities as roughly equivalent in their contribution to weight loss. This tendency toward perceived equivalence does not appear to reflect a comprehensive differentiated understanding, but rather a generalized belief that aerobic activities yield similar benefits regardless of intensity variation. Within the framework of the Theory of Planned Behavior (Ajzen, 2020), this finding suggests that students' behavioral beliefs regarding exercise effectiveness have not been fully formed knowledge of physiological effectiveness has not yet translated into strong, differentiated attitudes toward specific activities.

The effectiveness of a calorie deficit is determined not only by the energy expended in a single session but by the cumulative accumulation of physical activity over time. Without proper regulation of frequency, intensity, and duration, the contribution of both running and walking to energy balance remains suboptimal. Although students generally understand the principle of energy balance, practical application remains inconsistent, contributing to perceptions that do not fully reflect the scientific evidence. These findings therefore underscore the importance of educational interventions that emphasize the FITT principle (frequency, intensity, time, and type) alongside dietary integration, to help students bridge the gap between theoretical knowledge and practical belief.

The findings from the open-ended questions reinforced the quantitative results while providing a richer picture of how students conceptualize the two activities. In general, students tended to associate weight loss effectiveness with how physically demanding an exercise felt during performance. Running was viewed as more effective due to its higher intensity, faster increase in heart rate, and a more pronounced physical sensation of energy expenditure. This reflects a tendency among students to gauge exercise effectiveness through subjective experience during training, rather than purely through the physiological principles they have acquired academically. On the other hand, a portion of students held a different view. They considered walking more effective not because of its intensity, but because it is easier to sustain consistently and does not produce excessive fatigue that could undermine long-term motivation. This perspective suggests that some students have internalized the understanding that consistency is a more decisive factor in weight loss success than exercise intensity alone.

The most compelling finding emerged when students were asked to provide practical recommendations for individuals with excess body weight. Although the majority considered running to be generally more effective, nearly all students recommended walking as the more appropriate starting point. Their reasoning shifted from caloric effectiveness toward considerations of safety, joint comfort, and activity

sustainability. This indicates that students actually possess a more nuanced understanding than what their quantitative perception scores alone might suggest. They are capable of distinguishing between what is theoretically more effective and what is practically more suitable to apply though these two dimensions of understanding have not yet been fully integrated into their own exercise perceptions and behaviors. This is consistent with the Theory of Planned Behavior, whereby cognitive beliefs do not always translate proportionally into attitudes and actual behavioral intentions.

CONCLUSION

This study concludes that Sports Science students at Universitas Negeri Semarang perceive both running and walking as moderately effective methods for weight loss, reflected in mean scores of 33.08 and 33.13, respectively. Despite their academic background in sports science, students' perceptions of both activities remain at a moderate level, suggesting that theoretical knowledge alone has not been sufficient to form a comprehensive and evidence based understanding of exercise effectiveness. These findings highlight the need for more applicable educational approaches that bridge the gap between scientific knowledge and students' actual perceptions of physical activity for weight loss.

This study is limited by its reliance on self-reported data, its focus on a single institution, the use of a descriptive approach without inferential statistical testing, and the purposive sampling strategy, which limits generalizability. Future research is recommended to include inferential statistical comparisons, involve larger and more diverse samples, and incorporate gender-based analysis to explore potential differences in perception between male and female students.

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