Body Mass Index (BMI) and Waist Circumference Levels of Belly Dance Participants at Purnama Studio

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Abstract

This study aims to determine the Body Mass Index (BMI) levels and waist circumference of Belly Dance participants at Sanggar Purnama. This research employed a descriptive quantitative method using a total sampling technique, involving 15 active Belly Dance participants. The instruments used included BMI measurements and waist circumference. The results showed that most participants (40%) fell into the obesity category I, 26.67% were overweight, 26.67% were in the normal range, and 6.67% were classified as obesity category II. Regarding waist circumference, 53% of participants were within the normal range, while 47% exceeded the normal threshold for women (>80 cm), indicating central obesity. These findings suggest that although Belly Dance is regularly practiced, not all participants achieved ideal body weight or waist circumference. This highlights the importance of a holistic approach to weight management, incorporating regular physical activity, a balanced diet, and a healthy lifestyle. This study contributes to the understanding of Belly Dance's effectiveness on body composition and participant health and serves as a foundation for future health intervention strategies.

How to Cite

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INTRODUCTION

Body Mass Index (BMI) and waist circumference are important indicators in assessing a person's health status, especially those related to the risk of obesity and metabolic diseases. Obesity has become an increasing global health problem, including in Indonesia. There are many impacts resulting from obesity, including diabetes, heart disease, stroke, and other dangerous not contagious diseases that cause death (Raysha Ar'rizza et al., 2024).The 2023 Survei Kesehatan Indonesia (SKI) wrote that the obesity problem in Indonesia reached 23.4% for adults over 18 years of age. This number is almost half of the prevalence of normal nutritional status in Indonesia, which is 54.4%. This proves that is 1 from 5 Indonesians are obese. Kementrian Kesehatan also noted that women obesity is higher than men, with a prevalence of female obesity of 31.25, while men are only at 15.7% (Kementerian Kesehatan, 2023).

Body mass index can be used to determine whether someone is obese. This body mass index is also a simple comparison of body weight to height that is used to classify overweight and obesity in adults, (Kementerian Kesehatan RI, 2022). High waist circumference is associated as a marker of obesity and the risk of increasing health problems, especially those related to hypertension and diabetes (Harbuwono et al., 2018). Therefore, efforts are needed to be able to control BMI and waist circumference as a crucial aspect in maintaining body fitness and health.

Physical health is influenced by behavior and genetics, behaviors that can improve health are consuming a balanced nutritious diet, getting enough sleep, doing physical activities such as exercising and not consuming alcohol and not smoking (Nurjanah & Wahyono, 2019). Sports are physical activities that are useful for forming a healthy body and soul. Until now, sports have made many positive and real contributions to improving public health (Amirudin & Abdillah, 2020).One sport or physical activity that is widely popular with the public, especially women, is Belly Dance gymnastics. Belly dance is one of the sports training methods that uses music as a guide to movement. Many belly dance movements focus on the hip and stomach areas, so it is popular with women. Belly dance is also a form of exercise that can improve physical condition, because the participants must move quickly, sway constantly in the abdominal area and continue to move to by following the beat of the music (Hasan et al., 2017). Belly dance is also a form of physical exercise that combines rhythmic movements and flexibility, which not only improves cardiovascular fitness but also affects body composition, including abdominal circumference and body mass index.

Previous studies have shown that Belly Dance is effective in losing weight, reducing body fat and improving cardiovascular. In a study entitled "Is dancing an effective intervention for fat loss? A systematic review and meta-analysis of dance interventions on body composition" by Yaya Zhang stated that dance programs, which is Belly Dance, that carried out significantly can increase BMI, waist circumference and body fat mass compared to a normal lifestyle. This study supports that Belly Dance can affect body (Zhang et al., 2024)

In a quasi-experimental study conducted for female college students, it was shown that four weeks of Belly Dance training can improve health and body fitness, including BMI and flexibility (Bautista et al., 2022). Fahami Hasan in his study entitled "Analysis of the Effectiveness of Zumba and Belly Dance on Vo2max, Body Mass Index, and Body Fat Percentage" which compared the effectiveness of Zumba and Belly Dance, explained that Zumba and Belly Dance are effective in reducing BMI, reducing body fat percentage and can increase VO2max. Although there is no significant difference between the two exercises, these results indicate that belly dance can actually be used as an alternative exercise that can improve fitness and body composition (Hasan et al., 2017).Other studies also explain the relationship between belly dance and reducing body fat, including abdominal circumference. The results show that regular belly dance training can reduce body weight, fat thickness and abdominal circumference within 4 weeks. This decrease is supported by consistent physical activity and a balanced diet (Febriana, 2017).

The research problem in this study is to examine the levels and percentages of Body Mass Index (BMI) and waist circumference among participants of Belly Dance sessions at Sanggar Purnama, as well as to determine whether the majority of participants fall into the categories of normal, overweight, or obese. Furthermore, this study aims to explore the extent to which regular participation in Belly Dance influences the participants' BMI and waist circumference status, and to identify the factors that may affect these outcomes.

The novelty of this research lies in its focus on measuring and mapping the percentage levels of Body Mass Index (BMI) and waist circumference among participants of Belly Dance sessions

at Sanggar Purnama—an area of study that has received limited attention in Indonesia. This study employs a descriptive quantitative approach with total sampling of a specific group, thereby providing a concrete depiction of health status based on BMI and waist circumference among Belly Dance participants at Sanggar Purnama.

However, research that specifically discusses the level of body mass index and abdominal circumference of belly dance participants and measures its percentage is still very limited. Therefore, this study aims to measure the level and percentage of body mass.

METHODS

The method used in this study is quantitative descriptive. Quantitative data is collected only once without any intervention or special treatment of the research subjects (Abduh et al., 2022). In the quantitative descriptive research method, it only measures the level of a variable in a population or sample (M.Makhrus et al., 2022).

Population is the entire object or subject that is the main focus of the study (Amin et al., 2023).The population in this study were all belly dance gymnastics participants who routinely do gymnastics activities at Sanggar Purnama. Sampling used the total sampling technique, namely all members of the population were used as research samples (Sitoyo & Sodik, 2015). The number of samples in this study was 15 participants who routinely do Belly Dance gymnastics activities at Sanggar Purnama.

Instrument is a tool that used in collecting data in the research (Winarno, 2013)(Hita, 2022). The instruments used in this study were BMI and waist circumference measuring instruments. (Kementerian Kesehatan, 2023)classifies BMI into 5 categories based on WHO Asia Pacific.

Table 1. BMI Classification

Category	IMT (Kg/m2)
Underweight	<18,5
Normal	18,5-22,9
Overweight	23-24,9
Obesitas I	25-29,9
Obesitas II	>30

Measurement of abdominal circumference is done using a curcumference tape. The normal limit of abdominal circumference in men is 90 cm and for women 80 cm (Ahmad, 2023). The measuring tape should not press the skin too tightly and parallel to the floor, when measuring the body position is standing upright and calm (Rokhmah et al., 2015). The data analysis technique in this study used descriptive percentage statistics, to determine the level of body mass index and abdominal circumference of Belly Dance participants, using the percentage formula:

$$P = f / n \ x \ 100 \%$$

P : Precentage
f : Frequent
n : Total Frequent.

RESULTS AND DISCUSSION

Table 2. Frequency Distribution of BMI

Category	Frequency	Percentage
Normal	4	26,67
Overweight	4	26,67
Obesitas I	6	40,00
Obesitas II	1	6,67
Total	15	100

The data results in **Table 2** show that the BMI category of Belly Dance Gymnastics participants of Sanggar Purnama is mostly included in the obesity I category with 6 participants with a percentage of 40%. The normal and overweight categories each number 4 people with a percentage of 26.67% and there is 1 participant in obesity II with a percentage of 6.67%.

Table 3. Frequency Distribution of Waist Circumference

Category	Frequency	Percentage
Normal	8	53
Obesitas	7	47
Total	15	100

The results of the distribution of waist circumference in **Table 3** show that 53% or 8 samples are in the normal category and 47% of samples are included in obesity, which is the waist circumference of these 7 people exceeds the normal limit for women of 80 cm.

The results of this study indicate that the levels of Body Mass Index (BMI) and waist circumference of Belly Dance participants at the Purnama Gymnastics Studio are quite diverse. Most participants are in the overweight to obese category. From the data obtained, only 26.67% of participants have a BMI in the normal category, while another 26.67% are in the overweight category and 47% of participants are in the obese

category. This shows that even though they routinely participate in Belly Dance, some are still overweight which has the potential to increase the risk of metabolic disease.

Belly Dance itself is a type of exercise that combines rhythmic movements with a main focus on the stomach and hips. Several previous studies have stated that this dance can help lose weight, reduce body fat percentage, and improve physical fitness (Hasan et al., 2017). However, the findings in this study indicate that not all participants experienced significant changes in BMI or waist circumference. There are several factors that may influence, such as the duration and intensity of exercise, diet, and different individual metabolisms.

When it is seen from the aspect of waist circumference, as many as 53% of participants had waist circumference within normal limits. However, 47% of other participants had waist circumference that exceeded the normal standard for Asian women (>80 cm), which is categorized as central obesity. This condition is quite worrying, considering that central obesity is closely related to the risk of metabolic diseases such as type 2 diabetes and cardiovascular disease (Harbuwono et al., 2018).Although Belly Dance can be a fun and effective exercise to increase physical activity, its benefits in reducing waist circumference are still influenced by other factors, such as diet and overall lifestyle. This study confirms that exercising alone is not enough to achieve ideal body weight and reduce waist circumference. A more comprehensive approach is needed, the combination of consistent physical exercise, a balanced diet, and regular health monitoring.

In addition, it is also important to adjust the training program to the needs of each individual. Each participant may have a different level of fitness, so it is necessary to modify the movements or increase the intensity of the exercise to get optimal results. Age factors and initial physical conditions also play a role in determining the effectiveness of Belly Dance on changes in body composition.

This study provides new insights into the effectiveness of Belly Dance in maintaining health and helping participants achieve ideal weight and waist circumference. In the future, further studies with longer duration and additional approaches, such as dietary regulation, can be conducted to see the long-term effects of this exercise on the body.

CONCLUSION

The results of this study indicate that the percentage of Body Mass Index (BMI) and waist circumference of Belly Dance participants at Sanggar Purnama are varied, with most participants being in the overweight to obese category. Although Belly Dance is known as an exercise that can improve fitness and help with weight loss, the data obtained showed that not all participants experienced significant changes in BMI or waist circumference. As many as 47% of participants had waist circumference that exceeded the normal limit for Asian women, which is categorized as central obesity and at risk for metabolic disease.

This shows that exercise is not enough to achieve ideal body weight, but must be balanced with a healthy diet and a more active lifestyle.

This study highlights the importance of a holistic approach to maintaining health and fitness. Consistency of exercise, appropriate intensity, and support from a balanced diet are key factors in achieving optimal results.

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