Losing Weight through Regular Exercise among Overweight/Obesity Women Aged 35-45 years

Yusni1*, Amiruddin2, Razali2

1Department of Physiology, Faculty of Medicine, Universitas Syiah Kuala, Banda Aceh, Indonesia
2Physical Education, Health and Recreation, Faculty of Teacher Training and Education, Universitas Syiah Kuala, Banda Aceh, Indonesia

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Abstract Exercise is a simple and low-cost way to lose weight, but many people have become apprehensive to provide it. This activity aims to shift the community’s lifestyle from sedentary to active by encouraging physical activity through frequent gymnastics. Darussalam housewives gathered near the Universitas Syiah Kuala campus. There were two groups of 20 people: regular participants (n=11) and non-regular participants (n=9). Everyone in the study was between the ages of 30-45. Participants’ body weight (BW), height, and Body Mass Index (BMI) were measured before and after treatment. Participants did 60 minutes of gymnastics modified from Zumba, Aerobic, and Salsa, 3–4 times per week, at 05.00–06.00 p.m, for 12 weeks (3 months), and without any special diet. The regular group’s average age was 35.3 years, whereas the non-regular group’s average age was 36.78 years. The results showed that 80 percent and 22.22 percent of participants in the regular and non-regular groups, respectively, lost weight. Before and after exercise, the regular group’s mean BW decreased by 3.65 kg (68.25 and 84.6 vs. 59.19 and 59.25 kg), while the non-regular group’s BW increased by 0.06 kg. The regular exercise group’s BMI dropped by 1.53 kg/m\(^2\) after gymnastics (28.45 and 26.92 vs. 27.01 and 27.01 kg/m\(^2\)), while the non-regular exercise group’s BMI remained unchanged. Gymnastic movements have been modified to include Zumba, Aerobics, and Salsa, which could reduce BW and BMI. As a result, sustained exercise is required to help people reduce their risk of obesity. This practice has helped the government of the Republic of Indonesia’s efforts to increase physical activity and decrease the sedentary lifestyle in the population, thereby improving societal health. Obesity in women can be treated and prevented with regular exercise.

1. INTRODUCTION

Being overweight is notably dangerous for women, as obesity becomes a nightmarish specter for every woman (Arora, 2019). As a matter of fact, hormonal changes in young adult women (over 30 years old) coupled with the lack of activity (sedentary lifestyle) raise the risk of overweight/obesity and its comorbidities such as hypertension, diabetes, heart disease, and stroke. As a necessary consequence, the mortality rate goes up (Gallagher et al., 2000; Salomé et al., 2017; Tremblay et al., 2010). Obesity is defined as excess body weight that exceeds 25% of ideal body weight (Lee et al., 2018). Obesity is defined as an abnormal accumulation of body fat or BMI that exceeds the threshold (> 2 standard deviations), or when the percentage of body fat exceeds 20% for men.
and 25% for women and can be harmful to one’s health (Low et al., 2002). Obesity is described as a condition where it’s an absolute or relative excess of body fat (Aktar., et al, 2017; Low et al., 2002).

Obesity is a complicated disease due to the interaction of several risk factors, such as excessive food intake, lack of movement or exercise (sedentary behavior), psychological factors, endocrine disorders, fat metabolism disorders, and genetics (Girdhar et al., 2016). Obesity affects women’s physical appearance and attractiveness and becomes a public health issue in all age groups (Vasudevan et al., 2015). Obesity is caused by a multifactorial interaction of genetic and environmental factors, including high-calorie, high-fat, low-fiber eating habits, physical inactivity or laziness, and socioeconomic factors (Tremblay et al., 2010; Tremblay et al., 2005).

Changes in eating habits, as well as a sedentary lifestyle, are two of the most important factors contributing to the rising prevalence of obesity in almost every country around the world, including Indonesia (Harbuwono et al., 2018). Obesity and overweight occur when energy intake exceeds energy expenditure (Lambert & Goedecke, 2003; Aktar, et al, 2017). An imbalance in energy intake and output will result in fat accumulation in adipose tissue (Helble & Francisco, 2017). Low energy expenditure is typically caused by a lack of physical activity and a sedentary lifestyle, whereas high energy intake is typically caused by eating high-fat, high-energy foods (Lambert & Goedecke, 2003). Furthermore, the presence of modern conveniences such as motorized vehicles, elevators, lifts, and air conditioning means that less energy is used to move. A lack of physical activity or a sedentary lifestyle is responsible for more than two million deaths each year. In adults, a lack of physical activity and increasingly sedentary lifestyles such as watching television, using computers, and playing computer games for extended periods (more than 2 hours at a time) tend to increase the incidence of obesity (Adiwinanto, 2008). Sedentary lifestyles are practiced by 60 to 85 percent of the population worldwide.

Obesity is a global health issue as well as a serious public health issue in developing countries, including Indonesia (Harbuwono et al., 2018). Overweight and obesity affect over one billion and 700 million adults worldwide, respectively. Obesity is projected to become a major problem in developing countries, including Indonesia, in the future. According to World Health Organization (WHO) data from 2015, there are 2.3 billion overweight adults and over 700 million obese adults (Girdhar et al., 2016). In 2014, up to 13% of the adult population was obese, with women (15%) having a higher prevalence than men (11%) (Girdhar et al., 2016). In Asia Pacific, the prevalence of overweight adults has risen dramatically. If the prevalence of overweight in 1990 was 34.6 percent, now it has increased steadily to 40.9 percent (Helble & Francisco, 2017).

Overweight and obesity affect people of all ages and socioeconomic backgrounds in Indonesia. Obesity affects approximately 23.1 percent of the population in Indonesia (Harbuwono et al., 2018). In 2000, Indonesia had 210 million people, with 76.7 million (23.3 percent) overweight and more than 9.8 million (4.7 percent) obese. According to Basic Health Research (Riskesdas) data from 2007, the national prevalence of obesity among people aged 15 was 10.3 percent (male 13.9 percent, female 23.8 percent) (Badan Penelitian dan Pengembangan Kesehatan, 2010). According to WHO, obesity is one of ten health problems that tend to increase the risk of other diseases in almost all countries around the world, and it is also one of five health problems that are at risk of increasing other diseases (comorbid) in several developing countries, including Indonesia (WHO, 2010).

Comorbid diseases associated with obesity include hypertension, glucose intolerance, atherosclerotic coronary heart disease, colorectal cancer, gout and arthritis, respiratory disorders in the elderly, low back pain, infertility, and diminished psychosocial function (Vasudevan et al., 2015). Obesity has become a worldwide epidemic in both developed and developing nations. Obesity is typically prevented and treated using a combination of diet and exercise interventions. Exercise is a powerful tool for weight loss and obesity prevention (Zaharia et al., 2013). Other research indicates that high-intensity interval training is an effective method for weight loss, body fat composition, and waist circumference (Domaradzki et al., 2020). Anam’s research found that obese children have low levels of physical activity and fitness. Inadequate physical activity causes more body fat to be deposited on tissue, whereas low physical fitness can harm the physical health of obese children (Anam et al., 2010). Podmark et al (2004) conducted research in Austria on 14 obese children who were boarded and given a strict exercise and diet program for three weeks, resulting in a weight loss of 4.7 kg.

Women have tried a variety of techniques to lose weight to achieve ideal or normal body weight, including surgery or liposuction. This method is time-consuming and comes with the risk of side effects if performed by non-specialists. There are low-cost and simple ways to lose weight or undergo obesity treatment, such as lifestyle modification through regular and measurable exercise (Swift et al., 2014). The increasingly sedentary lifestyle of Acehnese society has the potential to increase the incidence of obesity and its comorbidities. As a result, an effort is needed to empower these mothers or women to increase their activity and decrease their sitting time to avoid becoming overweight or obese (Mazzio, 2018; Wollaston et al., 2015). Regular exercise through gymnastics modified from Zumba, aerobics, and salsa has become a way to control and prevent obesity in women. This community service activity aims to help overweight or obese women lose weight. As a result, it lowers the prevalence of obesity in the community and prevents its comorbid diseases. This strategy is beneficial for lowering the mortality and morbidity rates associated with obesity in young women.
2. METHOD

Participants were housewives from Darussalam around the Universitas Syiah Kuala campus. The total number of participants was 19 young women (aged 30-45 years). Participants have divided into two groups: one group was women who did regular exercise (a regular- gymnastics group) with ten women, and one group was women who did not do regular exercise (non-regular gymnastics group), amounting to 9 people. The regular exercise group is doing an exercise regularly, with a frequency of at least 3-5 times per week, with the duration of 60 minutes per training session, and for three months (12 weeks). The non-regular exercise group was non-regular exercise women (exercise less than two times/week) for three months (12 weeks). The initial participants were 20 people (11 women for regular gymnastics groups and 9 non-regular gymnastics groups). All participants were willing to volunteer to do exercise according to a predetermined schedule and sign a written informed consent.

Participant’s criteria were female, aged between 30-45 years, physically and mentally healthy based on the results of physical examination and anamnesis, not disabled, not suffered sports injuries or other physical injuries that can interfere with the activity of gymnastics, and willing to be a participant with a willingness to sign a participant community service activity. The subject will be excluded if she is not willing to follow all the action through to completion, gets injured during the implementation of activities, needs special medical treatment, or is treated for health problems.

Physical examinations were carried out, including weight (BW), height, and Body Mass Index (BMI). All components were carried out twice, before and after 12 weeks of treatment (91\textsuperscript{st} day). Gymnastic service activities were provided to participants, which were modified from Zumba, aerobic, and salsa exercises. The movement modification in question is that for one exercise, three types of exercise are carried out, namely 15 minutes for each type of gymnastic with a total of 45 minutes, while 15 minutes for warm-up and cool-down movements. Gymnastics is carried out with a duration of 60 minutes per training session, frequency 3-5 times per week (Monday-Friday), carried out at 05.00-06.00 pm, and for 12 weeks (3 months or 91 days). There have no dietary restrictions or dietary arrangements for all participants during the treatment (gymnastics). The venue for the activity was the Faculty of Medicine, Universitas Syiah Kuala, Darussalam, Banda Aceh. This activity was approved by the Medical and Health research ethics committee of the Medical Faculty, Universitas Syiah Kuala by the registered number 262/EA/FK-RSUDZA/2019.

3. RESULTS AND DISCUSSION

The results of the examination can be seen in Table 1. Table 1 reveals that the participants in both groups were between the ages of 30 and 44. The youngest age group was 30 years old (a total of 4 people, or about 21.05%), while the oldest age group was 44 years old (a total of one person, or about 5.26%) of the total number of participants. The average age of the participants in the two groups was different; the regular gymnast group was around 35.3 years old, while the non-regular gymnast group was around 36.78 years old.

Table 1: Data on the results of the participant’s examination (before and after regular gymnastics)

| Participants | Age | Anthropometry | Group |
|--------------|-----|---------------|-------|
|              |     | Weight        | Height | BMI      |
|              |     | Pretest | Posttest | Pretest | Posttest | Pretest | Posttest |
| P1           | 44  | 66      | 65      | 159     | 159     | 26.11   | 25.71   | Regular   |
| P2           | 33  | 79.5    | 74      | 150.5   | 150.5   | 35.10   | 32.67   | Regular   |
| P3           | 42  | 73      | 70      | 155     | 155     | 30.39   | 29.14   | Regular   |
| P4           | 40  | 62      | 62      | 149     | 149     | 27.93   | 27.93   | Regular   |
| P5           | 30  | 115     | 108     | 153     | 153     | 49.13   | 46.14   | Regular   |
| P6           | 32  | 60      | 50      | 155.5   | 155.5   | 24.81   | 20.68   | Regular   |
| P7           | 30  | 68      | 65      | 157.5   | 157.5   | 27.41   | 26.20   | Regular   |
| P8           | 30  | 74      | 66      | 153     | 153     | 31.61   | 28.19   | Regular   |
| P9           | 34  | 67      | 64      | 157     | 157     | 27.18   | 25.96   | Regular   |
| P10          | 30  | 73      | 70      | 157     | 157     | 29.62   | 28.40   | Regular   |
| P11          | 38  | 60      | 60      | 157     | 157     | 24.34   | 24.34   | Regular   |
| P12          | 38  | 74      | 74      | 154     | 154     | 31.20   | 31.20   | Non-Regular |
| P13          | 34  | 66      | 65.5    | 147     | 147     | 30.54   | 30.31   | Non-Regular |
| P14          | 37  | 50.5    | 50.5    | 146.5   | 146.5   | 23.53   | 23.53   | Non-Regular |
| P15          | 35  | 48      | 48      | 136.9   | 136.9   | 25.61   | 25.61   | Non-Regular |
| P16          | 34  | 61      | 60      | 141     | 141     | 30.68   | 30.18   | Non-Regular |
| P17          | 35  | 54      | 54      | 146     | 146     | 25.33   | 25.33   | Non-Regular |
| P18          | 43  | 60      | 62      | 159     | 159     | 23.73   | 24.52   | Non-Regular |
| P19          | 40  | 60      | 60      | 159     | 159     | 23.73   | 23.73   | Non-Regular |
The BW measurement results for the regular gymnast group can be seen in Table 2. This table shows that there was a difference between BW before and after gymnastics regularly. The average weight loss of the community service participants was 3.95 kg after 12 weeks of regular gymnastics. The results also showed that as many as 9 or 81.82% of the participants lost weight, and only about 2 (18.18%) of the participants did not lose weight in the regular gymnastics group. Weight loss for each participant varied from 1 to 10 kg.

Table 2 shows the results of the BMI examination before and after 12 weeks of gymnastics in the regular gymnastics group. The reduction in BMI varied between participants, with the lowest reduction being 0.40 kg/m² and the highest being 4.14 kg/m². These findings show that regular gymnastics not only reduced body weight but also BMI values in women aged 35 to 45 years. As a result, gymnastics can be used as a non-pharmacological weight loss therapy in women aged 35–45 who are overweight or obese. Aerobic, Zumba, and Salsa exercise movements can be modified as a therapeutic modality for overweight or obese patients. Changes in lifestyle from sedentary to actively helped women lose weight, lowering the prevalence of overweight and obesity. Regular physical activity is beneficial for both preventive and curative treatment of obesity in women.

Table 2 also shows the results of the BW examination in the non-regular gymnastics group. According to the findings, only two people (22.22 percent) experienced a decrease in body weight, while the remaining six people (66.67 percent) did not. There was even one participant (11.11 percent) whose BW increased by 2 kg after irregular gymnastics. These findings suggest that irregular gymnastics (less than three times per week) cannot help overweight or obese women lose weight. As a non-pharmacological therapy, regular exercise is recommended in overweight or obese women to reduce weight and BMI. Table 2 describes that the BMI before and after gymnastics did not change in the non-regular gymnastics group. This shows that irregular exercise did not affect weight loss or BMI in overweight or obese women. Energy expenditure due to exercise is highly dependent on the type of exercise (aerobic, resistant training, or a combination of both), intensity (mild-moderate), duration (45-60 minutes), frequency (5-7 times per week), and performed regularly (Pyšná et al., 2020).

Although there was a decrease in weight and BMI after 12 weeks of regular exercise based on descriptive data analysis, data analysis using an independent sample t-test revealed that there was no effect of regular exercise on weight loss and BMI in the regular gymnast group. as well as non-regular gymnasts (p>0.05). Table 2 also shows that there is a height difference between the regular and non-regular gymnast groups. This is because some non-regular gymnasts have lower-than-average body weight. This value has no bearing on the outcome of this service activity because height is not an observed variable, but rather serves as supporting data to assess.

Excess calorie intake is stored as body fat, and chronic excessive food consumption leads to obesity (Naureen et al., 2022). Obesity is directly related to a decrease in daily energy expenditure as a result of decreased physical activity, which leads to an increase in body fat stores and an increase in body weight or obesity (Japutra et al., 2015; Wiklund, 2016). Obesity can be managed by altering one’s lifestyle by controlling food intake and energy expenditure (Petridou et al., 2019). Physical activity or exercise has long been recognized as an effective way to increase energy expenditure and reduce body fat deposits in obese or overweight people, with or without dietary restrictions (Fernandez et al., 2004). Physical activity boosts energy metabolism and adipose tissue metabolism, both of which are linked to obesity (Pyšná et al., 2020). Obesity risk is reduced by aerobic exercise, resistance training, or a combination (Brellenthin et al., 2021).

Exercise can increase lipolysis and decrease visceral fat, making it an excellent strategy for reducing abdominal obesity (Petridou et al., 2019). Aerobic exercise for eight weeks to 18 months, according to empirical evidence, can reduce the fat percentage by 5 to 10% (Fernandez et al., 2004). We discovered that a 12-week regimen of aerobic exercise, salsa, and Zumba had a non-significant reduction in body weight in overweight and obese women. Suman also attempted to claim that aerobics for eight weeks...
reduced BW and BMI in men and women aged 24–40 in Baroda, Gujarat (Suman, 2016). Other findings suggest that a 12-week combination of aerobic exercise and resistance training was more efficient than either aerobic exercise or resistance training in losing weight in overweight and obese people (Ho et al., 2012). When compared to positive energy balance, exercise increases it by 3 to 10 times. As a result, 45–60 minutes of moderate-intensity exercise per day can reduce fat deposits and prevent obesity (Lambert & Goedecke, 2003; Zaharia et al., 2013).

Previous research also indicated that aerobic gymnastics can help 1 in 5 women aged 20–25 years lose 0.73 percent of their body weight (Yusni, 2014). Women’s BMI can be diminished by 6 weeks of low-impact aerobic gymnastics (Fepriyanto et al., 2019). Aerobic exercise for 6 weeks can significantly reduce BMI in overweight and obese women aged 17–22 years (Muriyati et al., 2018). Obesity is caused by an imbalance between energy intake and energy expenditure, and exercise is one way to increase energy expenditure, lipolysis, and reduce body fat as well as a fat percentage (Fernandez et al., 2004; Muriyati et al., 2018; Philippou et al., 2019). Even without a strict diet, exercise is more effective at losing weight and preventing obesity (Philippou et al., 2019).

4. CONCLUSION

This community service activity has helped the participants to increase their physical activity and prevent a sedentary lifestyle; therefore, it can control and prevent overweight/obesity in young women.

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CONFLICT OF INTERESTS

The implementation and publication of this community service activity are known and approved by all teams; therefore, there is no conflict of interest in this activity.

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