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Comparative Study on the Effectiveness of Aerobic and Resistance Exercise among South Indian Population

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Authors' contributions

Author AJP have designed the study and done the statistical analysis. Author SH have collected the literature articles and drafted the manuscript and the author GD have done the final approval of the manuscript.

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ABSTRACT

These days people are more about how they look and are giving lots of importance to fitness. Aerobic exercise improves cardiovascular adaptations that increases the peak of oxygen consumption and increases the strength. This is more preferred than resistance exercise as it can be done at home. This study was a prospective observational study. The pros were easy to create. It has gathered large data, it is economical and it has quick interpretation. The cons were the homogeneous population and its survey fatigue. To minimize the sampling bias we have to minimize error in questions and avoid loading questions. This study contains 15 self-structured questionnaires which validated the study design, general population, methodology and its survey questionnaire are the internal validity. From the data analysis, the results showed that 95% feel it is good to do aerobics everyday and 5% feel it is not good to do aerobics everyday. 85% prefer walking is a good exercise and 15% prefer walking is not a good exercise. 85%

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feel aerobics tones our body, 15% feel aerobics does not tone our body. The aim of my study is to compare the effectiveness of aerobic and resistance exercise among the South Indian population.

Keywords: Aerobic; exercise; resistance; aerobics; cardiovascular.

1. INTRODUCTION

These days people are more about how they look and are giving lots of importance to fitness. Aerobic exercise improves cardiovascular adaptations that increases the peak of oxygen consumption and increases the strength. This is more preferred than resistance exercise as it can be done at home. On the other hand resistance exercise improves muscular strength and durability. This uses exercise machines, this is done mostly in the gym. But resistance exercise has some ill effects. It may cause injury in case the dumbbells are dropped or if the proper handling is not done. Aerobic exercise reduces depression because this exercise consists of balanced body movements, it helps in strengthening the body muscles [1].It is seen that aerobic exercise , increases the capacity of muscles in the people who spend their time mostly seated [2].Both aerobic and resistance exercise give good results for people who have type 2 diabetes [3].

Hypertension is a disease that is caused due to high blood pressure and it cannot be treated but aerobic exercise is used as a means to treat hypertensive patients [4]. Cycling, walking, jogging, running reduces the risk of cardiovascular disease [5]. Aerobic exercise helps us even sustain life and improve our lifestyle [6]. This exercise enhances the ability of muscles [7]. Resistance exercise gives effective results as the oxygen in our body is consumed [8]. Resistance exercise reduce the blood flow in the exercising muscles [9]. Resistance training rises the bone mineral density [10]. Resistance exercise reduces stress in people with parkinson's disease [11]. In one study shows that resistance exercise is more effective in the proper function of muscles in elder population with knee osteoarthritis [12]. It is seen that aerobic and resistance exercise makes the muscles fit and cardiovascular fitness [13]. It is known that aerobic exercise administer good results in colon cancer patients [14]. The aim of my study is to compare the effectiveness of aerobic and resistance exercise among the South Indian population.

2. MATERIALS AND METHODS

This was a prospective observational study. The advantages of the study were economical, easy to create, wide reach, gathers large data, quick interpretation. The sampling method used in our study was simple random sampling. This study contains 15 self structured questionnaire which validated the study design, general population, methodology and its survey questionnaire are the internal validity. Knowledge, awareness, effectiveness are the output we get from this study. Using a pie chart and bar graph the study can be represented. Each output variable was collected as ordinal data and the collected data were represented as pie charts. A statistical test was done using a software SPSS. Statistical test used descriptive analysis and frequency percentage. Chi-Square analysis was performed and $p<0.05$ was considered as statistically significant.

3. RESULTS AND DISCUSSION

From the data analysis, the results showed that 95% feel it is good to do aerobics everyday and 5% feel it is not good to do aerobics everyday (Fig. 1).85% prefer walking is a good exercise and 15% prefer walking is not a good exercise (Fig. 2). 85% feel aerobics tones our body and 15% feel aerobics does not tones our body (Fig. 3). 74% feel resistance exercise makes you feel tired and 26% feel resistance exercise does not make you tired (Fig. 4).63% feel resistance exercise improves cardiovascular function and 37% feel resistance exercise does not improve cardiovascular function (Fig. 5). 74% feel aerobics is the best way to reduce fat and 26% feel aerobics is not the best way to reduce fat (Fig. 6). 70% feel resistance exercise increase metabolism and 30% feel resistance exercise does not increase metabolism (Fig. 7). 74% prefer aerobic exercise and 26% prefer resistance exercise (Fig. 8). 72% feel swimming is a resistance exercise and 28% feel swimming is not a resistance exercise (Fig. 9). 77% prefer pilates is a resistance exercise and 23% prefer pilates is not a resistance exercise (Fig. 10).

We have seen the association between gender and awareness if it is good to do aerobics everyday (Fig. 11), awareness that aerobics tones our body (Fig. 12), awareness is resistance exercise makes you tired (Fig. 13), awareness if aerobics is the best way to reduce fat (Fig. 14), and aware which is more preferred aerobic or resistance exercise (Fig. 15).

In the previous study 73% preferred aerobic exercise than resistance exercise [15], in our study 95% prefer aerobic exercise better than anaerobic exercise .One study showed aerobic exercises strengthened the cardiovascular muscle [16] while in our study 93.5% felt resistance exercise. In the previous study, the author Cindy concluded that aerobic exercise is used to reduce stress [17]. The author Schwandt concluded that aerobic exercise improve the mood of cardiovascular patients [18]. In obese older adults both aerobic and resistance exercise gave positive outcomes for weight loss [19]. The patients with systolic heart failure could do regularly perform the exercises without any disturbances [20]. Previous aerobic studies show aerobic exercise and resistance exercise led to those control of glucose in the type 2 diabetes patients [21,22]. One study concluded resistance exercise is more beneficial for patients with non alcoholic fatty liver and poor cardiorespiratory than aerobic exercise [23]. One study concluded that continuous aerobic exercise decreases heart rate, systolic blood pressure and there is no change in diastolic blood pressure and increases the ability of the muscles [2]. Many studies have concluded aerobic exercise reduces blood pressure [4,5]. One study showed resistance exercise increases the size and the strength of muscles [9]. Aerobic exercise upgrades the cardiovascular fitness reduces the hypertension of patients [4,8]. To compare the effectiveness of aerobic and resistance exercise among south indian population.

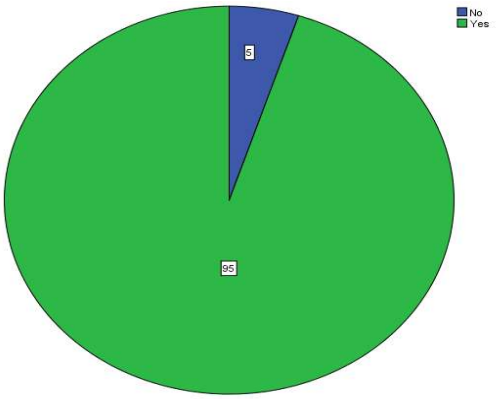

Fig. 1. Pie chart showing percentage distribution on the "if it is good to do aerobics everyday". Majority of the participants about 95% Yes (blue); 5% No (green)

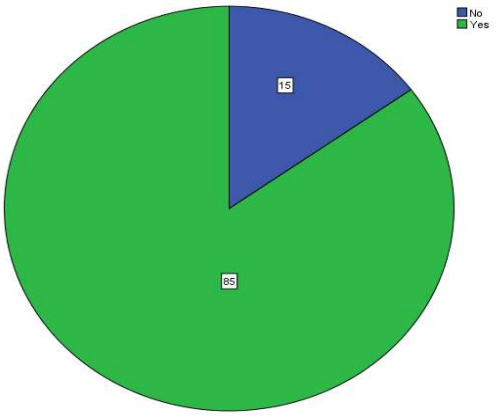

Fig. 2. Pie chart showing percentage distribution on the "whether walking is a good exercise". Majority of the participants about 85% Yes (blue); 15% No (green)

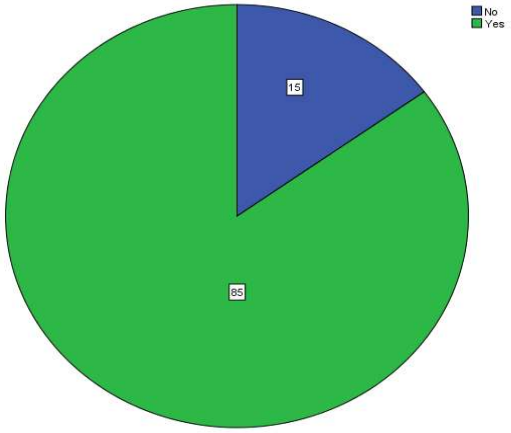

Fig. 3. Pie chart showing percentage distribution on the "aerobics tone of our body". Majority of the participants about 85% Yes (blue); 15% No (green)

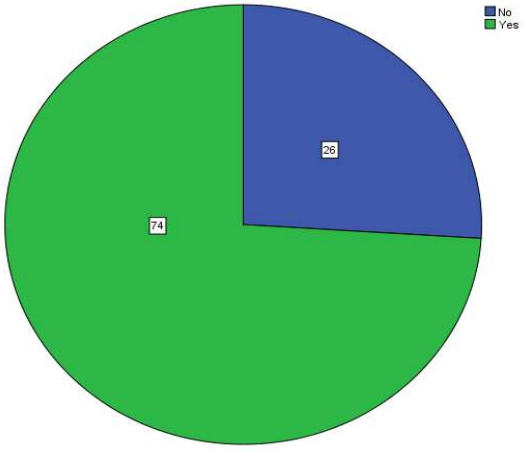

Fig. 4. Pie chart showing percentage distribution on the "if resistance exercise makes you tired". Majority of the participants about 74% Yes (blue); 26% No (green)

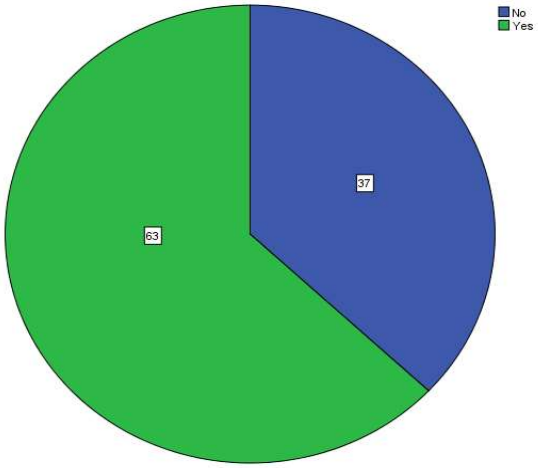

Fig. 5. Pie chart showing percentage distribution on the "if resistance exercise improves cardiovascular function". Majority of the participants about 53% Yes (blue); 37% No (green)

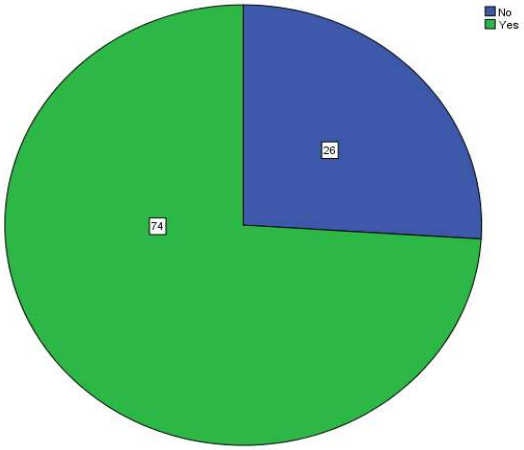

Fig. 6. Pie chart showing percentage distribution on the "aerobics is the best way to reduce fat". Majority of the participants about 74% Yes (blue); 26% No (green)

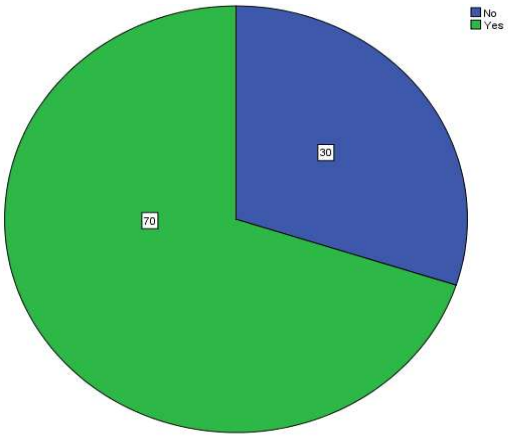

Fig. 7. Pie chart showing percentage distribution on the "resistance exercise improves metabolism". Majority of the participants about 70% Yes (blue); 30% No (green)

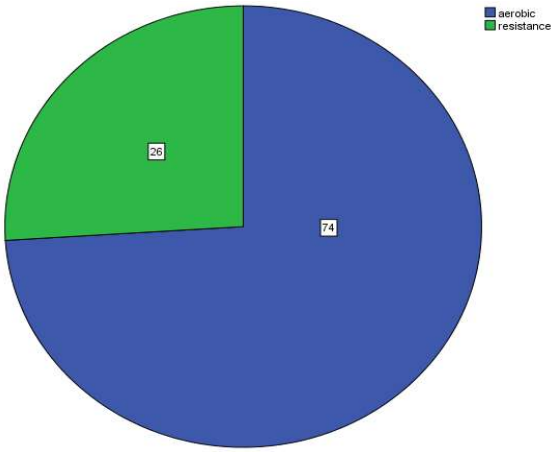

Fig. 8. Pie chart showing percentage distribution on the "which is more preferred aerobic or resistance exercise". Majority of the participants about 74% aerobic (blue); 26% resistance (green)

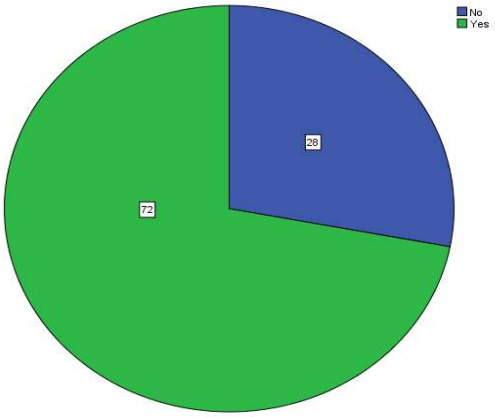

Fig. 9. Pie chart showing percentage distribution on the "if swimming is a resistance exercise". Majority of the participants about 72% Yes (blue); 28% No (green)

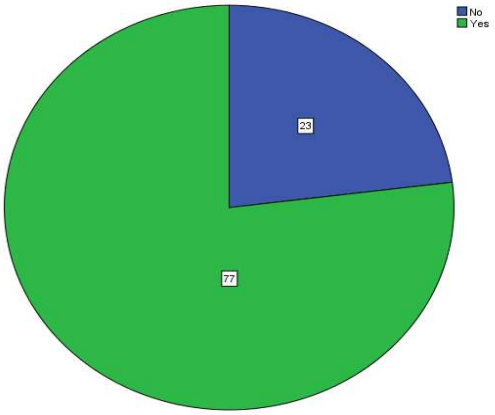

Fig. 10. Pie chart showing percentage distribution on the "if pilates is a resistance exercise". Majority of the participants about 77% Yes (blue); 23% No (green)

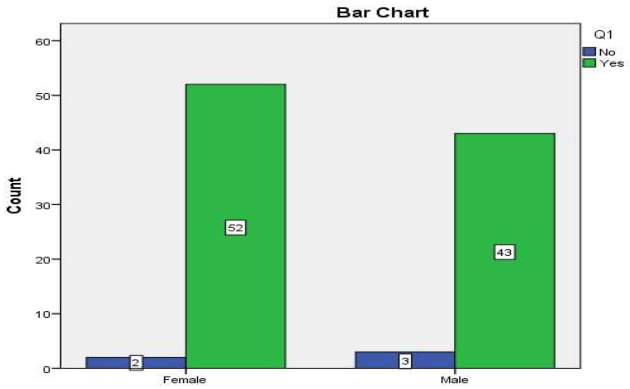

Fig. 11. Bar graph represents the association between gender and if it is good to do aerobics everyday". X axis represents the gender, Y axis represents number of participants of which blue colour indicates yes and green colour indicates no. Majority of the females (52 participants) reported it is good to do aerobics everyday more than males. However the difference is not statistically significant (Pearson's chi square value- 0.415, p value- 0.519 (> 0.05), hence not statistically significant

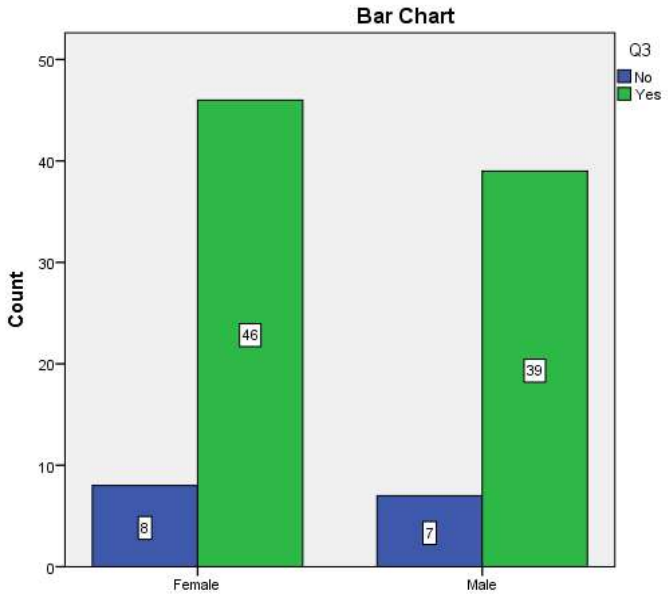

Fig. 12. Bar graph represents the association between gender and aerobics tone our body X axis represents the gender, Y axis represents number of participants of which blue colour indicates yes and green colour indicates no. Majority of the females (46 participants) reported aerobics tones our body more than males. However the difference is not statistically significant (Pearson's chi square value- 0.003, p value 0.955 (> 0.05), hence not statistically significant

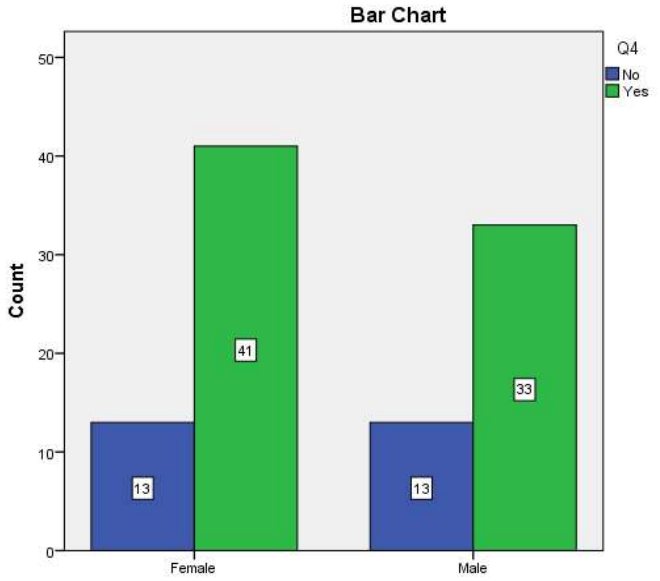

Fig. 13. Bar graph represents the association between gender and if resistance exercise makes you tired. X axis represents the gender, Y axis represents number of participants of which blue colour indicates yes and green colour indicates no. Majority of the females (41 participants) reported if resistance exercise makes you tired. However the difference is not statistically significant (Pearson's chi square value- 0.226, p value 0.634 (>0.05), hence not statistically significant

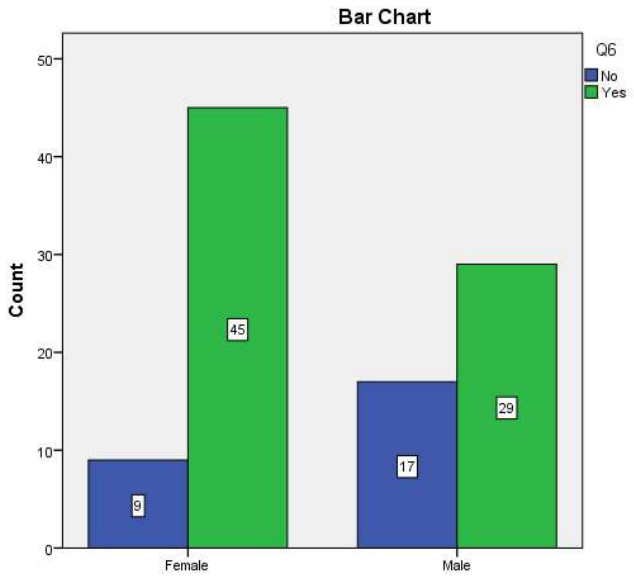

Fig. 14. Bar graph represents the association between gender and aerobics is the best way to reduce fat. X axis represents the gender, Y axis represents number of participants of which blue colour indicates yes and green colour indicates no. Majority of the females (45 participants) reported being aware aerobics is the best way to reduce fat more than males. However the difference is not statistically significant (Pearson's chi square value-5.315, p value 0.021 (<0.05), hence statistically significant

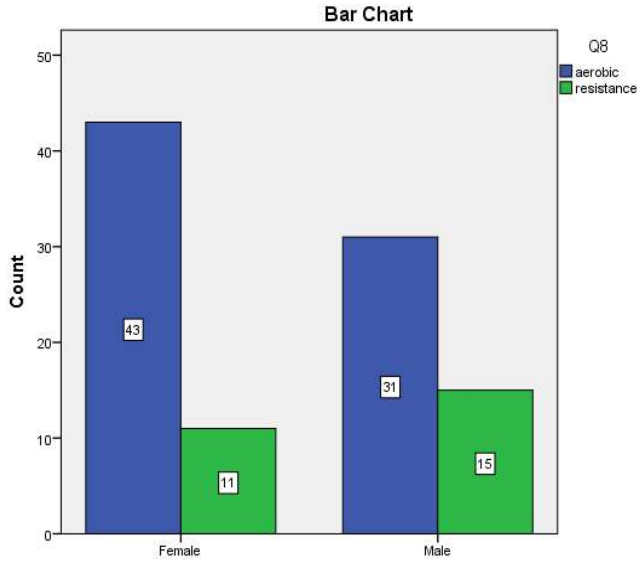

Fig. 15. Bar graph represents the association between gender and which is more preferred aerobic or resistance exercise. X axis represents the gender, Y axis represents number of participants of which blue colour indicates yes and green colour indicates no. Majority of the females (43 participants) reported aerobic exercise is preferred more than males. However the difference is not statistically significant (Pearson's chi square value- 1.934, p value 0.164 (< 0.05), hence statistically significant

4. CONCLUSION

Aerobic exercise is a physical exercise of low to high intensity that depends primarily on the aerobic energy generating process. Aerobic means requiring free oxygen includes activities like brisk walking, swimming, running and cycling. The heart rate will increase during aerobic exercise. Resistance exercise involves the performance of physical exercises which are designed to improve strength and endurance. It is often associated with the use of weights but can take a variety of different forms. In our study compared to resistance exercise, aerobic exercise is more preferred.

CONSENT

As per international standard or university standard, respondents' written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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