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EFFECTIVENESS OF AEROBIC EXERCISES ON BODY MASS INDEX (BMI), PHYSICAL ACTIVITY AND MENSTRUAL DISTRESS LEVEL IN YOUNG FEMALE ADULTS WITH IRREGULAR MENSTRUATION

Physiotherapy

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ABSTRACT

A regular menstrual cycle is indicative of a healthy reproductive system. Menstrual irregularities, commonly faced by young adults during their periods, are often attributed to factors such as hormonal fluctuations, insufficient physical activity, thyroid disorders, and dietary habits. The aim of the study is "To know the effectiveness of aerobic exercises on body mass index (BMI), physical activity, and menstrual distress level in young female adults with irregular menstruation". **Need Of The Study:** This study aims to find out the effect of aerobic exercises on BMI, Physical activity, and menstrual distress level in young adults with irregular and regular menstruation. **Aim Of The Study:** It is to know the effectiveness of aerobic exercises on body mass index (BMI), physical activity, and menstrual distress level in young female adults with irregular menstruation. An experimental study. **Objectives & Methodology:** This study evaluates the BMI, physical activity level, and menstrual distress level. An experimental study was conducted on 30 young female adults with irregular and regular menstrual groups of age groups between 19-25 years were included in the study. All the subjects performed aerobic exercise for 6 weeks in non-consecutive days of irregular and regular menstrual groups. The subjects who fulfilled the inclusion criteria were assigned to the irregular menstrual group(n=15), and regular menstrual group(n=15) based on their menstrual history informed consent was obtained from all the subjects and the menstrual distress through the menstrual distress questionnaire and the physical activity levels through the international physical activity questionnaire was measured at baseline and on completion of 6 weeks of aerobic exercises. **Results:** A total of 30 young individuals included in the study were assigned into an irregular menstrual group (n=15), and a regular menstrual group (n=15) of the mean age group 21.20 1.472 years. The pre and post scores comparison of BMI, Physical activity, and Menstrual distress levels show clinical statistical significance with P<0.05. **Conclusion:** The present study concludes that aerobic exercise was effective in regulating body mass index, increasing physical activity of young female adults, and decreasing menstrual distress levels in individuals with irregular and regular menstrual groups.

KEYWORDS

Irregular menstrual group, Regular menstrual group, Aerobic exercise, BMI, Physical Activity, Menstrual distress level scale.

INTRODUCTION

Menstruation is a universal biological process experienced by most females, marking a significant aspect of reproductive health. On average, it was estimated that a women spent about one-fifth of her reproductive years menstruating. (1) Prevalence of Pcos, Dysmenorrhea, Menorrhea, Polymenorrhea, Hypomenorrhea, and irregular menstrual cycle was found at 14.4 %, 15. 14%, 6.29%, 3.70%, 5.16% and 44.83% in the recent articles respectively. (12) Disorders in cycles or irregularities are a major gynecological problem among female adults, especially adolescents. (2)

The World Health Organization (WHO) recommends at least 150-300 minutes of moderate-intensity physical activity per week for adults aged 18-64 years. However, studies have shown that lower levels of physical activity are associated with menstrual disorders such as dysmenorrhea, amenorrhea, oligomenorrhoea, irregular menstruation, etc. (3)

The International Physical Activity Questionnaires (IPAQ) consist of both long and short versions, designed for use through various methods, including telephone or self-administration. These questionnaires aim to serve as common instruments for assessing physical activity across different populations. (4)

The Menstrual Distress Questionnaire (MEDI-Q) is a newly developed tool that has been validated for comprehensive evaluation of menstrual-related distress in an Italian population and is available in the Italian language. It consists of 25 items that cover different areas of menstruation-related symptoms such as pain, discomfort, psychic or cognitive changes, and gastrointestinal disturbances. (5)

The American College of Sports Medicine defines aerobic exercise as any activity that uses large muscle groups, can be maintained continuously, and is rhythmic. Aerobic exercises are popular physical activities among women. Based on previous research, aerobic exercises have benefits for menstrual disorders. (6,7)

Need Of The Study:

Many studies have assessed the effect of aerobic exercises on premenstrual syndrome and dysmenorrhea.

Minimal literature is available relating to irregular and regular menstrual group individuals and the effect of aerobics on physical activity.

Hence, the need for the study is to find out the effect of aerobic exercises on BMI, Physical activity, and menstrual distress level in young adults with irregular and regular menstruation.

Aim Of The Study

The aim of the study is "To know the effectiveness of aerobic exercises on body mass index (BMI), physical activity, and menstrual distress level in young female adults with irregular menstruation". An experimental study.

Objective Of The Study

- To determine the effect of aerobic exercises on body mass index (BMI) in individuals with irregular menstruation.
- To determine the effect of aerobic exercises on body mass index (BMI) in individuals with regular menstruation.
- To evaluate the effect of aerobic exercises on physical activity by using international physical activity questionnaire (IPAQ) scale in individuals with irregular menstruation.
- To evaluate the effect of aerobic exercises on physical activity by using international physical activity questionnaire (IPAQ) scale in individuals with regular menstruation.
- To determine the effect of aerobic exercises on menstrual distress level by using menstrual distress questionnaire (MEDI-Q) in individuals with irregular menstruation.
- To determine the effect of aerobic exercises on menstrual distress levels by using the menstrual distress questionnaire (MEDI-Q) in individuals with regular menstruation.

MATERIALS AND METHODS

The Study Was Conducted In The Svims Cop.

Ethical Clearance

Ethical clearance was obtained from the institutional ethics committee

(CODE:1545)

The subjects who fulfilled the inclusion criteria were assigned to the irregular and regular menstrual groups based on their menstrual history informed consent was obtained from all the subjects and the menstrual distress through the menstrual distress questionnaire and the physical activity levels through the international physical activity questionnaire was measured at baseline and on completion of 6 weeks of aerobic exercises.

OUTCOME MEASURES:

Body Mass Index (BMI) (11): -

BMI stands for body mass index.

It is a measurement of a person's weight relative to his / her height. It is an indicator not a direct measurement of a person's total body fat.

It is expressed in: BMI = weight (kg)/ height (m2)

International Physical Activity (IPAQ): (4)

The following methods were adopted to calculate IPAQ in met-min/week IPAQ (International Physical Activity Questionnaire-Short Form)

Computation of the total score requires the summation of the duration (in minutes) and frequency (days) of walking, moderate-intensity, and vigorous-intensity activity;

MET values and Formula for computation of Met-minutes

Walking MET-minutes/week = 3.3 * walking minutes * walking. days.

Moderate MET-minutes/week = 4.0 * moderate-intensity activity minutes * moderate days Vigorous MET-minutes/week = 8.0 * vigorous-intensity activity minutes * vigorous-intensity days

A combined total physical activity MET-min/week can be computed as the sum of Walking + Moderate + Vigorous MET-min/week scores.

Menstrual Distress Questionnaire (MEDI-Q): (5)

A new tool that assesses and evaluates the global distress experienced by women during their period. It consists of 25 items. that cover different areas of menstruation-related distress,

Study Protocol

Includes 6 weeks of aerobic exercises

Each session includes 5 minutes of warm-up phase, exercise regime followed by 5 minutes of cool-down phase 30 seconds of resting time between each exercise, and 3 mins of resting time between each circuit.

Weekly 3 sessions of non-consecutive days (Tuesday, Thursday& Saturday) and progression of 4 repetitions of each exercise per week.

Statistical Analysis & Results

The results were analyzed using SPSS 21. version for the statistical analysis of the study. In the present study 30 individuals are included in the subjects. The subjects who fulfilled the inclusion criteria were assigned into the irregular(n=15) and regular menstrual group (n=15) based on their menstrual history an informed consent was obtained from all the subjects and the menstrual distress through the menstrual distress questionnaire and the physical activity levels through the IPAQ was measured at baseline and on completion of 6 weeks of aerobic exercises. Outcome measures were taken before and after the intervention, and the values were tabulated using MS excel chi square test was used to compare the difference with pre and post value of irregular and regular menstrual groups.

The demographic data of AGE, BMI, IPAQ, MEDI-Q mean and standard deviation values. Descriptive statistics with the mean standard deviation of age (21.201.47), BMI is (27.5080 1.62) IPAQ is (813.27 566.07) MEDI-Q is (52.00 26.90).

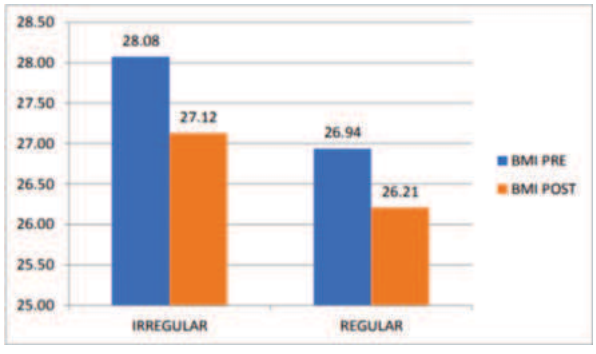
Comparison of BMI within and between the groups chi square test was used to examine the association between groups of irregular and regular menstrual group. There is an insignificant association at 5% significance level between aerobic exercise of both regular and irregular menstrual groups. Irregular menstrual group of BMI has no statistical significant difference i.e. χ^2=210.01, df=196,p=0.23 ,regular menstrual group of BMI has no statistical significance difference i.e χ2=165.01,df=143,p=0.10. The effect of treatment between the irregular and regular menstrual group of BMI showed statistical significance i.e.,0.04 p<0.05

Comparison of physical activity level with in and between the groups chi square test was used to examine the association between groups of irregular and regular menstrual group. There is an insignificant association at 5 % significance between aerobic exercise of both regular and irregular menstrual group. Irregular menstrual group of physical activity has no statistical significant difference i.e.χ2=63.54, df=48, p value=0.07.

Regular menstrual group of physical activity has no statistical significant difference i.e. χ2=97.50, df=90,p value=0.28. There is no statistical significance is seen with in the groups of Irregular and regular menstrual group of physical activity. The effect of treatment between the irregular and regular menstrual group of physical activity shows statistically significance i.e.,0.01 or p<0.05.

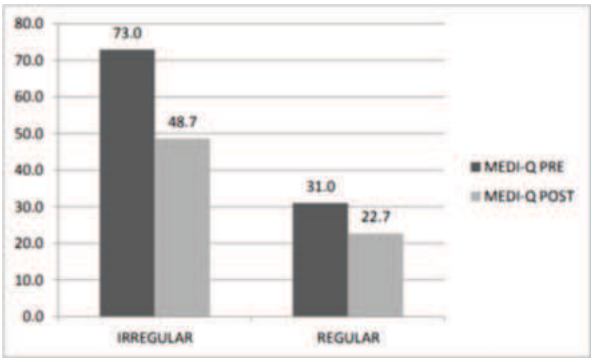
Comparison of Menstrual distress value of within and between groups chi square test was used to examine the association between groups of irregular and regular menstrual group.There is an insignificant association at 5 % significance between aerobic exercise of both regular and irregular menstrual group. Irregular menstrual group of menstrual distress has significant level i.e.χ2=43.75,df=30,p value=0.05. Regular menstrual group of menstrual distress has significant level i.e χ2=56.00,df=28,p value=0.00. There is statistical significance is seen with in the groups of Irregular and regular menstrual group of menstrual distress level. The effect of treatment between the irregular and regular menstrual group of menstrual distress level shows statistically significance i.e.,0.00 or p<0.05.

The difference between the groups Chi-square test was used to examine the difference between groups there is an insignificant association at a 5% significance level between BMI, physical activity, and menstrual distress level. In irregular and regular menstrual groups of BMI, physical activity has no statistically significant difference i.e., Irregular group BMI χ2=210.00,df=196,p value=0.23, regular menstrual group BMI χ2=165.00,df=143,p value=0.10. Irregular menstrual group of physical activity χ2=63.54,df=48,p value=0.7, Regular menstrual group of physical activity χ2=97.50,df=90,p value=0.28. Irregular and regular menstrual group of menstrual distress has statistically significant value. Irregular menstrual group of menstrual distress χ2=43.75,df=30,p value=0.05, Regular menstrual group of physical activity χ2=56.00,df=28,p value=0.00.



Graph-1 Shows The Mean Difference Between Pre And Post-values Of BMI In The Irregular And Regular Menstrual Groups.

Graph-2 Shows The Mean Difference Between Pre And Post Values Of Physical Activity In Irregular And Regular Menstrual Group.



Graph-3 Shows The Mean Difference Between Pre And Post Values Of Menstrual Distress Level In Irregular And Regular Menstrual Group.

DISCUSSION

The present study concludes that aerobic exercise was effective in regulating body mass index, increasing the physical activity of young female adults, and decreasing menstrual distress levels individuals with irregular menstruation.

A total of 30 young individuals included in the study were assigned to an irregular menstrual group (n=15) and, a regular menstrual group (n=15) of mean age group 21.20 1.47 years. The pre and post scores comparison of BMI, Physical activity, Menstrual distress levels show clinical statistical significance with $P<0.05$.

According to Gabriela P Mena, Gregore I Mielke, Wendy J Brown argues that associations between PA and BMI with irregular periods and HMB (Heavy menstrual bleeding) over 15 years, in a cohort of young Australian women. The prevalence of irregular periods remained largely unchanged over this period and there were no associations between PA and irregular periods. (8)

According to Dr.S. Saradha,Dr. K. Madhavi,Dr.N.Kavitha shows the findings of the study has both types of aerobic exercise and yogasanas were effective in reducing the intensity of primary dysmenorrhea.But aerobic exercises are more effective when compared to the yoga asanas,in reducing pain, enhancing physical activity, and alleviating mood levels.(9)

Our aim of this study was therefore "To know the effectiveness of aerobic exercises on body mass index (BMI), physical activity, and menstrual distress level in young female adults with irregular menstruation". An experimental study

Recent studies have shown on aerobic exercise be effective in reducing pain and symptoms of dysmenorrhea. It is considered that the pain during the menstrual cycle is due to prostaglandins which are present in high quantities in menstrual fluid with 8 weeks of exercise protocol. (10)

Limitations And Recommendations

Limitations:

Sample size is small
Study duration is less

Recommendations

The future study is recommended with a large sample size.

The future study is recommended for more than 6 weeks duration for better results.

Future studies can be done with different protocol comparisons.

CONCLUSION

Aerobic exercise is one of the effective, inexpensive, and non-pharmacological measures to reduce irregular menstrual symptoms among young female adults. The present study concludes that aerobic exercise was effective in regulating body mass index, increasing the physical activity of young female adults, and decreasing menstrual distress levels in individuals with irregular menstruation. Hence the alternate hypothesis is accepted and the null hypothesis is rejected.

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