Research Article

Effect of aerobics on general well-being and physical parameters

Pooja Godiyal[1], Grace M Singh[2], Priya J P Narayan[2]

[1]Department of Nursing, Hemwanti Nandan Bahuguna Garhwal University, Srinagar, Garhwal, Uttarakhand, India, [2]Department of Nursing, Swami Rama Himalayan University, Dehradun, Uttarakhand, India

Correspondence to: Pooja Godiyal, E-mail: mithusona16@gmail.com

Received: September 06, 2016; **Accepted:** October 13, 2016

ABSTRACT

Background: Many people suffer physically and mentally due to various diseases and ailments as a result of erratic lifestyles. Lifestyle modification is a pro-active approach toward optimum health and wellness by bringing about appropriate changes in the way we live to "Live Life More" and physical activity plays an important role in this aspect. **Objectives:** To evaluate the effectiveness of dance aerobics on general well-being (GWB) and selected physical parameters of nursing students. **Materials and Methods:** Quasi-experimental approach with time series design was used in the study. The study was conducted in Himalayan College of Nursing, HIHT, Dehradun. Consecutive sampling technique was used to collect data from 40 subjects. **Results:** The improvement in GWB with a mean difference (MD) of 26.45 was found significant at $P < 0.001$ following 6 weeks of dance aerobics. The reduction in physical parameters with a MD of weight (0.82), body mass index (0.41), waist circumference (4.16), hip circumference (2.52), and waist–hip ratio (0.01) was found significant at $P < 0.001$ following 6 weeks of dance aerobics. **Conclusion:** This study concluded that the students were interested in dance aerobics and 6 weeks of dance aerobics were found effective in improving GWB and to bring physical parameters within normal or near normal range.

KEY WORDS: Dance Aerobics; General Well-Being; Physical Parameters; Students

INTRODUCTION

"Health is Wealth" but many of us sacrifice our health and run behind wealth.[1] Many people suffer physically and mentally due to erratic lifestyles.[2] Hence, one has to realize that one's lifestyle plays a crucial role in "remaining healthy."[3] Unfortunately, low level of physical activity among young adults in industrialized nations are a cause of concern.[4] They find it hard to dedicate time for physical activities such as exercises although one of their first priorities is to stay in perfect shape.[5] Fun and enjoyment are important motives for young people to participate in physical activity. The easy method of maintaining a perfect figure is dance aerobics which is a subdivision of physical exercise. It combines the rhythmic steps of aerobics with graceful dance movements. Dance aerobics helps in strengthening our body by improving mental capacity and gives us energy to carry out our day-to0day activity effectively and efficiently.[6] The World Health Report of 2002 states that globally, obesity is affecting an increasing proportion of young people.[6] According to global status report on non communicable disease (NCD) 2010, approximately 3.2 million people die each year due to physical inactivity. Insufficient physical activity is the fourth leading risk factors for mortality.[7] According to NCD risk factors survey 2007-2008 in Uttarakhand, 67% of population were in low category of physical activity.[8] A survey was conducted by researcher, revealed that 80% of nursing students residing in hostel were not involved in any type of physical activities during their leisure time and also they do not had any interest in doing exercises, which indicate that some fun and enjoyment is required to motivate the students to participate in physical activities. Hence, the researcher was

Access this article online	
Website: http://www.ijmsph.com	Quick Response code
DOI: 10.5455/ijmsph.2017.0954113102016	

motivated and felt the need to do the present study and to measure the effectiveness of dance aerobics on general well-being (GWB) and selected physical parameters.

MATERIALS AND METHODS

Study Design

This study was conducted in the auditorium of Himalayan College of Nursing, Dehradun, India, from 11 January 2013 to 24 February 2013. Body mass index (BMI) was checked for all 248 female nursing students residing in hostel. Forty-three students were found to have BMI ≥ 25. Three students were excluded from the study as one student was asthmatic, and two students were contraindicated to perform exercise due to prolapsed vertebral disc. Finally, written consent was obtained from 40 subjects, who fulfilled inclusion and exclusion criteria as mentioned further.

Inclusion Criteria

Nursing students who were willing to participate in the study, residing in hostel and having BMI ≥25 were included in the study.

Exclusion Criteria

Nursing students who were contraindicated to do exercise, were physically disabled, and sick at the time of data collection were excluded from the study.

Instrument/Tool

Data were collected thrice: Pre intervention, 3 weeks post intervention, and 6 weeks post intervention using standardized GWB scale (GWBS)[9] and physical assessment tool.

GWBS

In the scale, the maximum and minimum scores on positive items were 150 and 30, respectively. On the negative items, minimum score was 25 and maximum was 125. A high score indicates enhanced sense of GWB and low scores denotes diminished sense of GWB. A score of 226-275, indicates high GWB, 177-225, indicates average GWB and below 176, indicates low GWB.

Physical Assessment Tool

This tool was developed by investigator to assess the weight, BMI, waist circumference, hip circumference, and Waist–hip ratio of selected subjects. Weighing machine of KRUPS Company was used to check the weight of study subjects. Weighing machine was kept on a flat surface and zero error was checked before each weighing. Weight was checked early morning, before eating and after emptying the bladder. Subjects were instructed to stand straight without shoes on the scale with head facing in front and should wear same type of clothing for all three times of data collection. Weight was recorded when display was stationary and not fluctuating. BMI was calculated as per the WHO guidelines by dividing the weight in kilograms by the square of an individual's height in meters.[10]

The WHO guidelines were used to measure the waist circumference, hip circumference, and calculate Waist–hip ratio. Waist circumference was measured at the midpoint between the lower margin of the last palpable rib and the top of the iliac crest using a fibreglass tape measure which resists stretching and tearing. Hip circumference was measured at the widest portion of the buttock while viewing from the side.

For both measurements, the subjects were instructed to stand with feet close together, arms at the side and body weight evenly distributed, and should wear same type of clothing for all three times of data collection. They were asked to be relaxed, and the measurements were taken at the end of a normal expiration. A mark was put on the waist with a permanent marker and checked daily by the investigator. Each measurement was repeated twice; if the measurements were within 1 cm of one another, the average was calculated. If the difference between the two measurements exceeds 1 cm, the two measurements were repeated. Waist–hip ratio equals the waist circumference divided by the hip circumference.

Statistical Analysis

The data were presented as mean ± standard deviation (SD). Repeated measures ANOVA were performed to find the mean difference (MD) between the three levels of assessment. *Post-hoc* analysis was performed to analyze the changes between pre intervention to 3 weeks, 3-6 weeks, and pre intervention to 6 weeks assessment. Statistical significance was accepted when $P < 0.05$.

RESULTS

The study included a total of 40 female nursing students with age ranging between 17 and 24 years. The mean age of study participants was 20.30 ± 1.96. Change in GWB before, during, and after intervention is shown in Table 1. The mean post intervention scores of GWB following 3 weeks (210.32 ± 20.62) and 6 weeks (223.35 ± 22.63) of dance aerobics were higher than the mean pre intervention score (196.90 ± 20.95) of GWB. There was significant increase in mean GWB score (P<0.001).

Post-hoc analysis was performed to find MD in GWB score between the three levels of assessment. The results of *post-hoc* analysis are illustrated in Table 2 revealed that there was significant improvement in GWB score of all the

domains from pre intervention to 3 weeks post intervention, 3-6 weeks post intervention, and pre intervention to 6 weeks post intervention.

The change in frequency of students having low, average, and high GWB from pre intervention to post intervention is illustrated in Figure 1. The number of participants having low GWB declined from 5 (12.5%) at baseline to nil at 6 weeks after intervention. In contrast, there was increase in number of students with high GWB from 3 (7.5%) to 16 (40%) at 6 weeks after intervention. This suggests that the GWB status of the participants was improved from baseline to post intervention.

Change in physical parameters before, during, and after intervention is shown in Table 3. The mean post intervention scores of weight, BMI, waist circumference, hip circumference, and Waist–hip ratio following 3 weeks and 6 weeks of dance aerobics was lower than the mean pre intervention score ($P < 0.001$).

Post-hoc analysis of selected physical parameters between three levels of assessment is shown in Table 4. The reduction in physical parameters with a MD of weight (0.82), BMI (0.41), waist circumference (4.16), hip circumference (2.52), and Waist–hip ratio (0.01) was found significant ($P < 0.001$) following 6 weeks of dance aerobics.

Table 1: Change in GWB score of 40 nursing students before, during, and after intervention

GWB	Mean±SD	*F*	Significant
Pre-intervention	196.90±20.95	63.90	0.001
After 3 weeks	210.32±20.62		
After 6 weeks	223.35±22.63		

GWB: General well-being, SD: Standard deviation

Table 2: *Post-hoc* analysis of GWB score between three levels of assessment

GWB	MD	Significant
Pre intervention - 3 weeks post intervention	−13.42	0.001
3 weeks post intervention - 6 weeks post intervention	−13.02	0.001
Pre intervention - 6 weeks post intervention	−26.45	0.001

GWB: General well-being, MD: Mean difference

DISCUSSION

Obesity is increasing at an alarming rate worldwide. Psychological complications associated with obesity includes depression, poor self-image and difficulties in both human and social environment.[11] In this study, forty female students who were residing in hostel and having BMI ≥25 showed significant improvement ($P < 0.001$) in GWB with a MD of 26.45 following 6 weeks of dance aerobics. The researcher used GWBS, which consisted of items related to psychological well-being, depression, anxiety, and stress. The results of present study were close to the study conducted by Gargari et al., who found a significant reduction ($P < 0.05$) in post test beck depression questionnaire (7.23 ± 3.17) as compared to 8 weeks pre test score (22.77 ± 6.29). According to the results, it seems that aerobics is an effective method to reduce depression.[12] In the study done by Biswas to determine the effect of dance aerobics on stress among female students showed significant reduction. The mean (SD) before intervention was 12.16 (2.94) which was reduced to 10.23 (2.30).[13] Stella et al. conducted a quasi-experimental study to examine the effect of a single session dance aerobics on psychological mood state of 136 healthy adults. The total mood state score was 103.85 ± 1.13 before intervention, which was significantly reduced to 101.61 ± 1.16 following intervention.[14]

The selected physical parameters of nursing students after 6 weeks of dance aerobics showed a significant reduction. In the present study of 6 weeks dance aerobics, the MD for weight (0.81), BMI (0.41), waist (4.24), and hip circumference (2.48) were found significant. These findings are well correlated with those in the study conducted by Dr. Arsalan F. During the 8-week period of aerobic dance exercise program, the MD for weight (2.66), BMI (1.06), waist (6.28) and hip circumference (6.17) was found significant.[15] The increase in MD of all physical parameters was found less in the present study as compared to this study because of difference in the duration of aerobics performance.

The limitation of the study is that it does not have control group. The instructor had performed dance aerobics. The

Table 3: Change in selected physical parameters score of 40 nursing students before, during, and after intervention

Variables	Mean±SD			*F*	*P*
	Pre-intervention	After 3 weeks	After 6 weeks		
Weight	66.58±9.30	66.28±9.21	65.75±8.95	17.71	<0.001
BMI	28.98±4.17	28.81±4.16	28.57±4.05	20.36	<0.001
Waist circumference	90.46±8.88	88.45±8.71	86.30 ± 8.73	87.21	<0.001
Hip circumference	103.85±6.51	102.71±6.41	101.32 ± 6.33	70.36	<0.001
Waist–hip ratio	0.87±0.06	0.86±0.06	0.85 ± 0.06	17.35	<0.001

SD: Standard deviation

Table 4: *Post-hoc* analysis of selected physical parameters score between three levels of assessment

Variables	Pre intervention - 3 weeks post intervention		3wks post intervention - 6 weeks post intervention		Pre intervention - 6 weeks post intervention	
	MD	*P*	MD	*P*	MD	*P*
Weight	0.30	0.08	0.52	<0.001	0.82	<0.001
BMI	0.16	0.04	0.24	<0.001	0.41	<0.001
Waist circumference	2.01	<0.001	2.15	<0.001	4.16	<0.001
Hip circumference	1.13	<0.001	1.38	<0.001	2.52	<0.001
Waist–Hip ratio	0.01	0.002	0.00	0.006	0.01	<0.001

BMI: Body mass index, MD: Mean difference

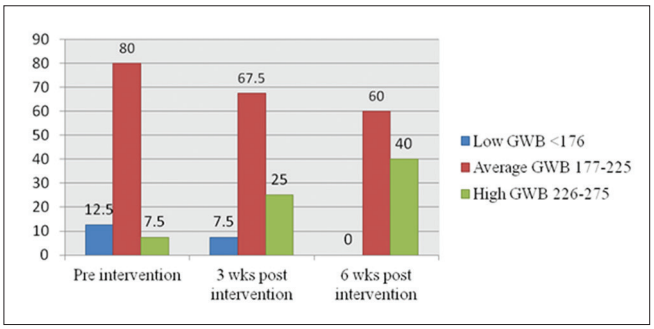

Figure 1: Percentage distribution of change in level of general well-being before, during, and after intervention

uniqueness may not be there but the instructions given by instructor were followed by all participants.

CONCLUSION

Based on the findings of the study, it can be concluded that the 6 weeks dance aerobics was effective method for improving the GWB and to bring the physical parameters within normal or near normal range as physical and mental health both are positively affected by dance aerobics.

REFERENCES

1. Anamika S. Learning from the art of living of our ancestors. February; 2012. Available from: http://www.anamikas.hubpages.com/hub/Learning-from-the-Art-of-Living-of-our-Ancestors. [Last cited on 2012 June].
2. Park K. Preventive and Social Medicine. 20th ed. Prem Nagar, Jabalpur: Bhanot Publishers; 2009. p. 13.
3. Gary R. Fitness. iloveindia.com. Aerobic Exercise. Available from: http://www.iloveindia.com/fitness/aerobics/index.html. [Last accessed on 2013 June 13].
4. Burgess E, Clay G, Corr B, Edwards P. Young people and physical activity – A literature review. Health Education Authority. Loughborough University. Available from: http://www.nice.org.uk/nicemedia/documents/youngpe_pactivity_review.pdf. [Last accessed on 2013 June 13].
5. Mike S. Should young people exercise? Article Base.com; 2007 Aug 7. Available from: http://www.articlesbase.com/fitness-articles/should-young-people-exercise-194920.html. [Last cited on 2012 Jun 16].
6. James E. Dance Aerobics. iloveindia.com. Available from: http://www.iloveindia.com/fitness/aerobics/dance-aerobics.html. [Last cited on 2012 Jun 19].
7. WHO Global Status Report on Non Communicable Diseases; 2010. Available from: http://www.whoindia.org/linkfiles/nmh_resources_ncd_risk_nin_report.pdf. [Last cited on 2012 Jun 13].
8. Ministry of Health and Family Welfare Government of India, Integrated Disease Surveillance Project, Non Communicable Disease Risk Factor Survey 2007-08. Uttarakhand. Available from: http://www.icmr.nic.in/final/IDSP-NCD%20Reports/Uttarakhand.pdf. [Last cited on 2012 Jun 21].
9. Kalia KA, Deswal A. Manual for General Well – Being Scale. National Psychological Corporation Bhargava Bhawan. Agra: Kacheri Ghat.
10. Basavanthappa BT. Community Health Nursing. 2nd ed. New Delhi: Jaypee Publisher; 2008. p. 224-5.
11. Bucha AN. Importance of aerobics in today's lifestyle. Int Indexed Refereed J. 2013;5(49):2. Available from: http://www.ssmrae.com/admin/images/43075416d60cf2a3274f686419a957b1.pdf. [Last cited on 2013 May 14].
12. Gargari AS, Jorkesh M, Dehghanpor M, Asadollahi A. Influence of aerobic exercises to music on the depression women non-athletes. Eur J Sports Exe Sci. 2012;1(1):5. Available from: http://www.scholarsresearchlibrary.com/archive.html. [Last cited on 2013 Mar 06].
13. Biswas S. Effect of aerobic dance on stress. Int J Res Pedagogy Technol Educ Mov Sci. 2012;1(2):4. Available from: http://ijems.net/issue02Dec.IJEMSp02.pdf. [Last cited on 2013 Mar 23].
14. Stella R, George M, Olga K. The impact of exercise intensity on mood state of particiapants in dance aerobics programs. Stud Phys Cult Tour. 2010;17(3):5. Available from: http://www.wbc.poznan.pl/Content/147546/05_Rokka_+REV.pdf. [Last cited on 2013 Apr 04].
15. Arslan F. Effects of a step-aerobic dance exercise programme on body composition. International Sport Med J. 2011;12(4):8. Available from: http://www.ismj.com/files/311417173/ismj%20pdfs/Vol_12_no_4_2011/Effects%20of%20an%208week%20aerobic%20dance%20exercise%20programme%20Final.pdf. [Last cited on 2012 June 23].

How to cite this article: Godiyal P, Singh GM, Naraya PJ. Effect of aerobics on general well-being and physical parameters. Int J Med Sci Public Health 2017;6(3):573-576.

Source of Support: Nil, **Conflict of Interest:** None declared.