

Dietary/Exercise Guiding Program for Improvement of Nursing Students Body Image, Self-Esteem and Overweight Prevention: A Randomized Controlled study.

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ABSTRACT

Background: Over weight is worldwide problem that threaten both physical and psychological health of female nursing students. Healthy promotion program as regular exercise and healthy diet will provide positive outcomes.

Design: A randomized controlled trial design (pre- post and at one month follow up) used in this study.

Sample: A purposive sample of 50 female nursing students divided into 2 groups are participated in this study. (25 student for diet and exercise group and other 25 students for exercise alone group).

Setting: The study was carried out at the gymnasium of faculty of nursing -Cairo University.

Tools: three tools for data collection were used: Personal data characteristics, Body image scale & Self-esteem scale.

Results: The results showed that there was a highly significant difference among total score of diet, exercise, body image and self-esteem group (1) and total score of exercise, body image and self-esteem group (2) respectively before and after implementation the program and one month follow up. **Conclusions:** The study concluded that the program has effectively reduced unhealthy behaviors of sampled college students and did improve their diet and exercise regiments as well as body image and self-esteem. **Recommendation:** Therefore, continuous dissemination through healthy promotion programs to bring about healthy life style behavior both in physical and psychological terms is recommended for the faculty students.

Keyword: Dietary/ exercise program, body image, self-esteem, overweight.

INTRODUCTION

Adolescence is the period of human development which a young person must move from dependency to independence, maturity, being a part of a peer group and to stand alone as an adult (Curtis, 2015). According to WHO (2019) & National Academy of Sciences (2019) adolescence defined as the stage that is used to denote individuals between 10 and 24 years, a period in which major physical and psychological changes occur. Therefore adolescence is considered as an especially vulnerable period for disturbances in the female body image and self-esteem.

Body image satisfaction significantly influences self-esteem in female nursing adolescents (Elsherif, & Abdelraof, 2018). The perceptions of physical appearance and self-worth are linked with each other, such that the perceived appearance consistently emerges as the strongest single predictor of self-esteem among female adolescents. Female students with lower self-esteem have a lower worth about themselves, shows self-rejection, self-dissatisfaction, and lacks self-respect, and think about themselves as nobody. Many influences exist that affect one's body image, self-esteem, weight status, and appearance (Gupta, et al 2018).

In view of overweight and obese nursing students, for college counselors, educators, and family members who have close contact with the students, they should pay attention to mental health status of nursing students. Understanding the symptom performances of obesity in nursing students is essential. The complex relationship between weight status and body image is important

because of its influence on female students' health behaviors (Elizondo, Repovich, & Lawton, 2016).

Negative health consequences that may result from the unique interaction of weight status and body image include physical inactivity, unhealthy eating pattern. (Voelker, Reel &Greenleaf, 2015). Diet and exercise program is considered the gold-standard treatment for adolescent's obesity. The goal of dietary and exercise program is to help adolescents establish an active lifestyle and healthy eating habits early in life and to maintain these behaviors throughout their lives. (Khanna, et al.2017).

Significance of the Study: Studies have revealed that the prevalence of overweight and obesity among adolescents in Arab countries ranges from 18% to 44% (Musaiger, et al 2012). According to study done by El-etary, & Zaki (2018) at the faculty of nursing Ain Shams university, it was found that sample of a total of 120 female nursing students more than two fifth of them were have low self-esteem and quarter of them were have poor body image perception.

Available statistics indicate that an alarming proportion of female adolescents in most Arab countries suffer from obesity and showed its adverse effects on both body image and self-esteem of female students to extent affects the quality of life. So, there is an urgent need to establish a plan of action to combat obesity in adolescents. Nowadays, the healthy life style is the main concern of the president to keep up for healthy Egyptian citizen from early childhood disease. And this research will be one of these initiatives that keep up with the national campaign of President ELCici for his recommendation about the early detection of obesity for adolescents by ministry of health.

This study aimed to evaluate the effectiveness of dietary - exercise program and exercise program alone for the female nursing students on improvement of their body image, self-esteem and prevention of overweight at the faculty of nursing Cairo University.

Research hypothesis:

H1: Nursing students who are subjected to dietary and exercise guiding program (group 1) & exercise guiding program (group 2) get higher scores in their body-image, self-esteem and lower score of bodyweight than before program implementation and at one month follow up.

H2: Statistically significant differences are scored higher among study variables of the dietary – exercise group than exercise group alone post implementation of the program and at one month follow up.

MATERIALS AND METHODS

Research Design: A randomized controlled trial design (pre- post and at one month follow up)

Sample: A purposive sample of 50 female nursing adolescent students. The groups were randomly allocated, with a list of students name with their assigned code number for every participant was in a pot. Then, drawing randomly a code numbers and put them in sealed opaque envelopes to be either in (group 1) or (group 2). This study was a double blind study where the participants, researcher, and captain of Zumba and aerobics exercise were blinded to group allocation.

Setting: This study was carried out on 2 phases the 1st one was in the faculty of nursing-Cairo University at the gymnasium hall. 2nd phase was done through zoom application method to communicate with all the studied sample to abide with the WHO instructions for precautions and safety of people, because of the outbreaks of a pandemic of covid -19.

Data Collection Tools

A: Personal data characteristics and anthropometric measurements: This tool was developed originally by the researcher. It has 3 parts; first part includes: student's characteristics as to record all the related code, level of study, marital status, history of medical or psychological problems and anthropometric measurements as (height, weight, BMI), Second part focused on healthy dietary habits to assess lifestyles eating habit. The scale consists of a 24 items, all items are answered using a 4-point Likert scale format. Third part describes exercising habit to measure physical activity. The scale consists of 16 items. This tools reliability is obtained at 0.844 for healthy dietary habit and 0.74 for physical exercise habit compared by acceptable range (0.7) which is highly acceptable.

B. Body image scale: This scale aimed to measure perception of body image by self or others. The scale consists of 27 items. All items are answered using a 3-point Likert scale.

C. Self-esteem scale: This tool was originally developed by Rosenberg (1965) to measure global self-worth by measuring both positive and negative feelings about the self. This scale consists of 10 items. All items are answered using 4-point Likert scale format.

Procedure: The investigator was contacted the participants who met the inclusion criteria of the study for

obtaining their informed consent. Participants were assigned randomly to the either the dietary and exercise program or exercise program alone with repeated assessments at base line, immediately after 16 sessions and at one month follow up. All questions related to the tool and the implemented program were answered and detailed explanation given to obtain the participant's acceptance and cooperation during conducting the assessment session.

Assessment phase (2 sessions) (February 2020): The study took ten months to overcome the gap of corona virus that stop the continuity of the program till the 6th session as regard the stopping of student from attending in the faculty. Through an introductory session the researcher introduced herself to participants, explained the objective of the program, and oriented them about the place of sessions, time schedule for the program, in addition to taking as an official contract for compliance on attendance of sessions and built good relation with them. Moreover, baseline assessment data were taken before the program implementation through the relevant selected tools (personal data questionnaire, anthropometric measurements, dietary and exercise habit, body image scale and self-esteem scale).

Implementation phase (14 sessions) (from February till September 2020) (2 phases): Structured 12 sessions for female students that exceeded to 16 sessions to overcoming the gap because of corona virus at two phases. Students who showed high scores of BMI were (50) female nursing students. These students were informed about aim, objectives, content of the program, number of sessions, type of activities and their responsibility to abide with the program rules. The program was implemented in 16 sessions; 6 sessions at the first phase and 10 sessions for second phase and classified as two sessions per week for 80-120 minutes for two groups at the first phase. Regarding 2nd phase was for 120 minutes for the first group through three meetings on zoom application and also 100 minutes for the three meetings for the second group. Besides instructions and tips through the week for improving both body image and self-esteem on both closed groups on WhatsApp and Facebook. Suitable teaching media were included an educational booklet that distributed to students in the first day of the educational training program.

Evaluation phase (October 2020) & Follow up (one month) (September 2020): All students assessed through the same relevant selected tools immediately after the 16 sessions and at one month follow up.

Ethical and legal considerations: A written ethical approval from "Ethics of Scientific Research Committee" at the Faculty of Nursing - Cairo University .In addition, an official permissions to conduct the proposed study was obtained from Vice Dean for Education and Students Affairs. A complete description of the purpose and nature of the study were explained to all subjects and they were informed that participation in the current study is entirely voluntary, and informed written consent was obtained from them, anonymity and confidentiality were protected by coding the data.

Data Analysis: A Statistical Package for Social Science (SPSS) version 20 is used for statistical analysis of data,

Parametric inferential statistics as descriptive (mean &SD), t-test, (ANOVA) and regression analysis were used to examine the differences and similarities between study variable as well as analysis of variance to examine found correlations. Probability (p-value) less than 0.05 was considered significant and less than 0.001 considered as highly significant.

RESULTS

Table 1 illustrated that, personal characteristics of the studied students. It was found that the majority of the sample (52%) form fourth level of academic year at (group1). While (group 2) there were (36%) in both first level and fourth level. According to BMI (56%- 44%) overweight-obesity group 1 respectively, (36%-64%) overweight-obesity group 2 respectively. All the studied sample were single, regular on their menstruation, not have health problems.

Table 2 indicated that, There was increasing in the score of dietary habit scale in group1 at post program and one month follow up without changes in group 2. In addition there were highly statistically significant differences

between two groups. As well as there was an increase in the score physical exercise scale in both group1 and group 2 with no statistically significant differences between two groups at follow up.

Table 3 demonstrated that, there was an increase in the score of body image, self-esteem scales in both two groups with no statistically significant differences between them.

Table 1: Personal characteristics of group 1& group 2

Personal characteristics	Group 1 (Dietary and exercise)	Group 2 (Exercise alone)
Level		
First	5(20.0%)	9(36%)
second	3(12%)	2(8%)
third	4(16%)	5(20)
fourth	13(52%)	9(36%)
BMI		
Under weight (<18.5)	0	0
Healthy (18.5-24.9)	0	0
over weight (25-29.9)	14(56%)	9(36%)
Obese (>=30)	11(44%)	16(640%)

Table 2: Comparison between group (1) and group (2) at healthy dietary habit & physical exercise scale.

Variable	Time	Group (1)		Group (2)		t-test	p-value
		Mean	SD	Mean	SD		
Healthy dietary habit (maximum score=92)	Pre	57.2	10.2	62.2	13.2	1.5	0.13
	Post	78.2	6.7	62.0	11.2	3.8	0.0001*
	Follow up	75.9	6.4	61.4	7.7	7.2	0.0001*
Physical exercise habit (maximum score=64)	Pre	37.2	5.6	40.5	5.7	1.9	0.05
	Post	47.8	3.6	45.8	1.2	2.6	0.012*
	Follow up	45.6	3.2	44.2	4.1	1.28	0.2

Table 3: Comparison between group (1) and group (2) at body image scale & self-esteem scale.

Variable	Time	Group (1)		Group (2)		t-test	p-value
		Mean	SD	Mean	SD		
Body image (maximum score=81)	Pre	53.5	11.4	49.9	9.6	1.19	0.24
	Post	61.8	8.5	62.2	5.4	0.23	0.81
	Follow up	64.4	6.6	63.9	5.0	0.28	0.77
Self-esteem (maximum score=40)	Pre	27.2	4.7	25.8	4.7	0.98	0.33
	Post	31.5	3.1	31.1	4.9	0.34	0.73
	Follow up	32.2	3.9	31.6	4.1	0.56	0.57

DISCUSSION

Considering the personal characteristics of the studied sample were most of the studied female nursing students at the fourth levels which constituted half of the studied group i.e., 52 %, they were all overweight or obese, and not had any health problems that may influence the interpretation of the results (table1).

Zaccagni et al., (2014), reported that, according to the literature, the university population is regarded as a convenient sample for the study of health in young adults. The comparison between ideal figure and feel figure. As regard, female nursing students at this group age was important to be included in such study as they are likely to be more at risk of exposure to disturbance in both body

image and self-esteem and also they must be a model to their patients in providing care.

Regarding the healthy nutrition, we found that total score of the healthy dietary habit scale before, after and one month follow up of the program increased that showed significant changes from un healthy habit to modifier healthy habit for group (1) versus group(2) which showed no changes in scores. This finding reported the importance of diet intervention for students (table 2).

A significant number of other international study findings in acquiesce with our study findings Said, & Mettwaly, (2017) who reported 400 female students of the faculty (included total score of their nutritional habits before and after application of the program. Most of them (3.6%) did not practice healthy dietary habits before intervention.

However after intervention, the majority of them (96.4%) practiced healthy dietary habits.

Furthermore Keshani et al., (2020), who found 311 students were included, 163 and 148 allocated in the experimental and comparison groups, respectively. Nutrition behaviors were examined one month after the last intervention and compared with the baseline. Diet quality improved in the experimental group ($P < 0.001$), which was significantly different from the comparison group ($P = 0.001$).

Our research focused on healthy lifestyle as regular mixed type of exercise aerobic & Zumba and the importance of staying physically fit to improve self-esteem and body image and vice versa. Regarding the physical exercise habit score, our results show improvement in the total score of exercise habit from before to after the program and one month follow up for both group (table 2).

Similar to our results study carried out with the participation of 60 student nurses, Al-Saiegh, & Ip, (2017) who Found that, Upon finishing the aerobic exercise program (week 8), the experimental group showed a higher score than the control group (119.7 vs. 86.2, $p < 0.01$), with this score diminishing after two months of having ended the intervention (91.4 vs. 85.8, $p = 0.061$). But this difference did not persist when the experimental group did not continue with the program.

The females wanted to change something on their body shape and size and eventually to lose weight. Even have been in normal and underweight category, most of them, wanted to lose weight, for an ideal, slimmer. Concerning the total score of body image at baseline after the program and after one month follow up the result revealed that, (53.5 - 61.8 - 64.4) (49.9 - 62.2 - 63.9) (group 1- group2) respectively (table 3).

This finding was congruent with previous study carried out by Pop, (2018) who found 79 % of girls have difficulties in accepting their body image, even 87.7% of the subjects have been in normal and underweight category. 41% of body dissatisfaction is determined by body mass index and subsequent by weight and fat deposits. Moreover, Hubbard, (2013) conducted the Effects of Exercise Modality on State Body Image who found that Twenty-five female participants, the average age of the participants was 20. Following the exercise sessions, state body image significantly improved from pre- to post-session (AE: 5.2 ± 1.2 to 5.7 ± 1.0 ; RE: 5.4 ± 1.4 to 5.9 ± 1.2 ; $p < 0.05$).

On the other hand the total score of self-esteem before, after the program and one month follow up (27.2 - 31.5 - 32.2) (25.8 - 31.1 - 31.6) group (1) –group (2) respectively (table 3). This result goes along with Axelsson, & Langdon, (2017) explained: Who found 126 college-aged students who engaged in either group exercise classes ($N = 40$) or solo exercise ($N = 86$). All female students, Results showed that there was no significant difference between the groups on any measured construct regardless of the exercise setting, college-age females had high levels of self-esteem and body-image after the program. In conclusion, physical activity engagement in the areas of group exercise and solo exercise are both beneficial for maintaining higher levels of self-esteem, body image, and motives for physical activity.

Indeed, Similar recent results by Barnes & Cassidy, (2018) assessed the impact of diet, exercise and motivation on weight loss and health behavior over 12 weeks who reported a total of 241 female students between the ages of 18-25 years included in the study, Participants were randomly allocated to one of 3 conditions groups, group 1, diet only, group 2, diet and exercise, and group 3, diet, exercise and motivational interviewing. Across all measures, group 2 (diet, exercise) and group 3 (diet, exercise and MI) showed a greater effect than group one diet only, as well as for weight loss. It was found to have significantly improved for group 2 and 3 at time 2. Regular exercise in conjunction with healthy diet could be used advantageously to reduce obesity, improved body image and self-esteem.

CONCLUSION

The study concluded that, healthy promotion program had an effective impact on BMI, body image and self-esteem. Highly significant difference between the two groups total scores before and after the program in favor of group (1) with respect to diet, exercise, body image and self-esteem. A highly significant impact of total diet and exercise scale score on total score of body image, self-esteem and BMI of group (1). A significant impact of total exercise scale score on total score of body image, self-esteem and BMI was found in group (2). The study concluded that, exercise alone is not enough; a balanced diet is also required, in reducing unhealthy behaviors of sampled college students.

Recommendations: In the light of the current study findings, the following recommendations are suggested:

Simple booklets regarding how to coping with healthy life style should be available and easily access in the faculty.

This study can be replicated with larger subjects in different faculties for generalizing the findings

The nursing curriculum should include the current life style modification to update the knowledge regarding healthy diet and regular exercise

Source of Support: Self
Conflict of Interest: None

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