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Effect of a Health-Based-Physical Activity Intervention on University Students' Physically Active Behaviors and Perception

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ABSTRACT

As part of their mission to educate students holistically, colleges and universities are expected to provide resources to help students avoid unhealthy lifestyle choices like sedentary living. In this regard, research indicates that sedentary lifestyle behaviours have been linked to various adverse physiological health outcomes. In this study, a health-based intervention was designed to encourage female college students to be physically active (PA) on a regular basis. The BMI, PBF, body image, and exercise self-efficacy were all studied. Using a pre-test-post-test experimental design, 157 female university students, out of 192 enrolled in five sections of a physical fitness and wellness course, voluntarily participated in a 12-week brisk-walking intervention. Tanita BC-420 MA, Body-Image Measure, and Exercise Scale were used to collect data at the beginning and end of the intervention during the fall of 2018 related to physically active adherence, BMI, PBF, body image, and exercise self-efficacy. The results of the current study showed that the strategy pursued with university students contributed to increasing levels of physical activity, reducing body weight, and reducing body fat in all study variables, while there was no change between the pre- and post-tests in the body image variable.

1. INTRODUCTION

Physical activity is defined by the American College of Sports Medicine as the body's ability to move and contract muscles while burning calories [1]. Physical activity has a positive impact on both mental and emotional health [2]. In addition to health benefits such as sickness prevention, physiological and mental enhancements, physical activity provides a number of psychosocial benefits [3, 4]. Physical activity is thought to be useful for boosting physical fitness and longevity [3]. In this market, PA's benefits have long been known, and they are many and considerable for all PA participants. PA has been found to lower the risk of obesity, heart disease, chronic sickness, and some types of cancer [5]. PA has been shown to promote both social well-being and academic success [6]. Humans may be motivated by a positive influence.

Deci and Ryan [7] reported that the self-determination hypothesis, contains components like personality development, self-regulation, universal psychological requirements, life ambitions, and aspirations. Nonconscious processes, cultural influences on motivation, and the social environment's influence on motivation all have an effect on behaviour and happiness.

According to Bryl et al. [8], PA should be viewed as an educational method designed to increase intellectual and mental capacities psychological requirements, life ambitions, and aspirations. Nonconscious processes, cultural influences on motivation, and the social environment's influence on motivation all have an effect on behaviour and happiness [7]. To understand how important PA is for health goals and benefits, we need to look more closely at PA's effects and statistics. The World Health Organization (WHO) says that 23% of adults and 8% of teens don't meet the "WHO global guidelines on physical activity for health" [9].

The WHO [9] is concerned about the rise in sedentary and inactive populations. Physical inactivity, according to Abou Elmagd [10], is a habit linked to a significant risk of life-threatening events. On the other hand, a PA might be able to help mitigate the harmful effects and encourage healthy living. Physically inactive people can improve their health and well-being by regularly participating in moderate-intensity physical exercise, sports, and leisure activities [11]. It is widely acknowledged that university space provides facilities and equipment for students to participate in PA of their choosing, including but not limited to athletics. Despite the fact that sports involvement is an essential source of exercise, poverty and a lack of basic needs have an impact on its growth and degree of participation [12].

In the current study, this is viewed as a social challenge/factor, implying that human needs are valued because they supply social variables that can impact motivation, behavior, and well-being both directly and indirectly. The World Health Organization (WHO) says that when a country's economy gets better, people are less likely to participate in PA. This is because of changes in technology,

transportation, urbanization, and cultural values.

Motivation for the current study stems from the lack of information and awareness of PA's benefits; how people approach training; and their motivation to engage in PA.

2. PERCEPTIONS OF BMI

It has been noted that research into the relationship between body image (BI) and obesity has gotten a lot of attention [13, 14]. In the meantime, many people are unfamiliar with the phrases "overweight" and "obesity," as defined by the BMI (BMI). Many studies have shown adults' perceptions of their weight status [15]. Exploring a person's weight status viewpoint and comparing it to his or her actual weight may help detect unrealistic BI perspectives, which are defined as a person's perceptions, thoughts, and feelings about his or her body [16]. According to studies, being aware of being overweight or obese is a key component in starting to pursue weight-related activities. As a consequence, accurate self-weight assessment and body satisfaction are critical for weight control and health. It's common to either overestimate or underestimate body size. Psychological elements, social influences, friends, family, age, and gender, among others, may be to blame for this [17].

People who are overweight or obese are more likely to have wrong ideas about their weight, which leads to weight-related attitudes (like worrying about what they eat and how much weight they have) and behaviours (like not trying to lose weight, eating unhealthy foods, and not getting enough exercise), which are key factors that make it hard to lose weight and keep it off [18]. The majority of the women at a Malaysian university who participated in numerous research [19-22] using the Stunkard Figure Rating Scale (FRS) favoured an underweight figure, but about 30% of the men selected an overweight figure. In comparison to men, women were more worried with their eating habits, weight, and body image. BID patients are less likely to exercise or engage in other healthy lifestyle activities. Obese women who lost an average of 22 kg had a substantial change in their BI. As a result, assessing a person's perceived BID is critical since it may serve as a predictor of future overweight or obesity, as well as eating disorders. The most difficult part is recognising which patients need BI intervention in order to carry out weight-loss plans. Early recognition of being overweight or obese has been demonstrated to be a critical element in both men and women reducing weight successfully [23]. In the United Arab Emirates, there have been limited investigations into BID and associated variables (UAE). According to previous research, 74.8 percent of female university students were unsatisfied with their body image. 73 percent of Americans are unhappy with their body image (78 percent of women and 58 percent of men). It may be helpful for early intervention programmes intended to help students improve their perceptions of their body weight and image and thereby avoid unhealthy eating behaviours to identify body image dissatisfaction among university students, a high-risk group due to the college environment's potential for high stress and body image concerns [24]. Therefore, the aim of the study by Lynch et al. [25] was to ascertain how body image dissatisfaction affects university students' behaviour with regard to Weight.

3. MATERIAL AND METHOD

3.1 Methods

157 female university students, ranging in age from 20 to 29 ± 1.94, and their height rate (157.98 ± 10.18) out of 192 enrolled in five sections of a physical fitness and wellbeing course, freely engaged in a 12-week brisk-walking intervention using a pre-test-post-test experimental approach. Students were obliged to walk for 30 minutes three times a week for 12 weeks at the university athletic facility under the observation of two research assistants. Students were also urged to go for a 30-minute walk twice a week during their free time. Students were also given lectures on nutrition, physical fitness, medications, health, and hypokinetic disorders; given extra handouts; viewed brief health-related video clips on YouTube; and collaborated to answer questions posed by the course instructors over Whatsapp. At the start and completion of the intervention in the fall of 2018, the Tanita BC-420 MA, Body-Image Measure, and Exercise Scale were used to gather data on PA adherence, BMI, PBF, body-image, and exercise self-efficacy.

The IPAQ (International Physical Activity Questionnaire) [26] was used to evaluate the degree of physical activity of each participant based on their replies to the questionnaire. MET min/week is the metabolic equivalent of a week's worth of moderate-intensity physical activity and high-intensity physical activity, respectively. The seven paragraphs in this fast model contain information about these three categories of physical activity. Sitting time is also tracked by the application. According to the MET, which was previously reported [27], the sample was divided into three groups based on how active they were (low, medium, and highly active). BMI was calculated by dividing weight in kilograms (KG) by height in meters (m) squared [28, 29].

Body Image Measure: The scale consists of six items. All items express feelings related to the body (e.g., I am satisfied with my appearance). The items were presented as a 5-point interval scale ranging from 1 do not agree at all" (1), 1 do not agree" (2), "undecided" (3), "agree" (4), and "strongly agree" (5). A high score indicates a more positive feeling about the body, more positive feelings about touch, and more body care and protection. The scores for each factor were calculated by averaging [30].

Exercise self-efficacy: The scale consists of 10 items that make up the 4-point Likert SCI Exercise Self-Efficacy Scale (ESES) in its current form. The scale is a self-reported measure. instructs respondents to indicate on the 4-point rating scale (1 = not at all true, 2 = rarely true, 3 = moderately true, 4 = always true) how confident they are with regard to carrying out regular physical activities and exercise [18].

3.2 Physical activity questionnaire

The following are the questions that this research will look into:

1. Is there a difference in PA adherence between students before and after the intervention?
2. Are there any variations in PBF before and after the intervention for students?
3. Does the BMI of the students vary before and after the intervention?

4. Is there a difference in body image amongst students before and after the intervention?
5. Are there any changes in exercise self-efficacy amongst students before and after the intervention?

The influence of a health-based physical activity intervention on university students' PA adherence behaviours and perceptions, BMI, percent body fat (PBF), body-image, body satisfaction, exercise self-efficacy, and body satisfaction was explored in this research. Students were given lectures on nutrition, physical fitness, drugs, health, and hypokinetic diseases, as well as supplementary handouts, short health-related video clips on YouTube, a 12-week brisk-walking program, and a cooperative effort to answer questions posed by the course instructors via the Whatsapp application. The treatment lasted a total of 12 weeks. The data was taken at the start and conclusion of the 2018 Fall semester. All were studied: PA adherence, BMI, PBF, body image, body satisfaction, and exercise self-efficacy.

3.3 Statistics analysis

The collected data was analyzed using computerized SPSS (Statistical Package for Social Science) software version 26. To indicate the differences between the pre- and post-tests between each variable, we used the mean and standard deviation and computed Paired Sample T-Test Sig. (2-tailed). A p-value of less than 0.05 was considered statistically significant.

4. RESULTS AND DISCUSSION

The characteristics of the main study sample of 157 participants, which included weight, body fat, body mass index, physical activity status (low, moderate, high), exercise self-efficacy, body image, and body weight satisfaction, Body are listed in Table 1 below.

Table 2 shows the results of the paired sample T-Test for the differences in the demographic variables of the participants. Accordingly, the results indicated that

There are statistically significant differences at the indication level (P = 0.001) between pretests and posttests of study sample members in the variables under study (weight, body fat, body mass index, physical activity status (low, moderate, high), exercise Exercise Self-efficacy, and body weight satisfaction), where all the values of these variables were lower than (P = 0.001). There were no statistically significant differences in body image between the pretest and posttests, with a P value of 0.501.

The results of the Table 2 showed a change between pretest & posttests of body weight in female students by (5.63%), (8.23%) in body fat, (4.85%) in BMI and an increase in the average physical activity rate (73.85%) in BMI and an increase in the rate of moderate physical activity (73.8%) 16%) low (70.95%), high (69.06%), change in Exercise Self-Efficacy (15.24%), small change in Body Image (1.45%) and Body Weight Satisfaction changed by 12.14%), all the changes between pretest & posttests all favored posttests as shown in Figures 1 and 2.

Table 1. Descriptive data related to measured variables in girl students (n=157)

Variables	Mean±SD	
	Pretest	Posttest
Weight	60.8 ± 16.4	57. 56 ± 11. 6
Body fat	26.3 ± 10.8	24.3 ± 8.0
Body Mass Index	23.8 ± 6.17	22.7 ± 4.46
Physical activity measure:		
Low (MET min/week)	233.3 ± 124.2	803.1 ± 306.7
Moderate (MET min/week)	237.2 ± 128.2	883.8 ± 277.9
High (MET min /week)	84.5 ± 101.9	273.1 ± 120.5
Exercise Self-Efficacy	2.67 ± 0.51	3.15 ± 0.32
Body Image	3.51 ± 0.89	3.46± 0.50
Body Weight Satisfaction	2.46 ± 0.94	2.80 ± 1.02

Table 2. Demographic characteristics of the 157 participants in the current study

Variables	t	df	P-value	100%
Weight	6.422	156	0.000	5.63%
Body fat	5.258	156	0.000	8.23%
Body Mass Index	3.752	156	0.000	4.85%
Physical activity measure				
Low (MET min/week)	-22.331	156	0.000	-70.95%
Moderate (MET min/week)	-26.063	156	0.000	-73.16%
High (MET min/week)	-15.930	156	0.000	-69.06%
Exercise Self-Efficacy	-10.076	156	0.000	-15.24%
Body Image	0.675	156	0.501	1.45%
Body Weight Satisfaction	-4.111	156	0.000	-12.14%

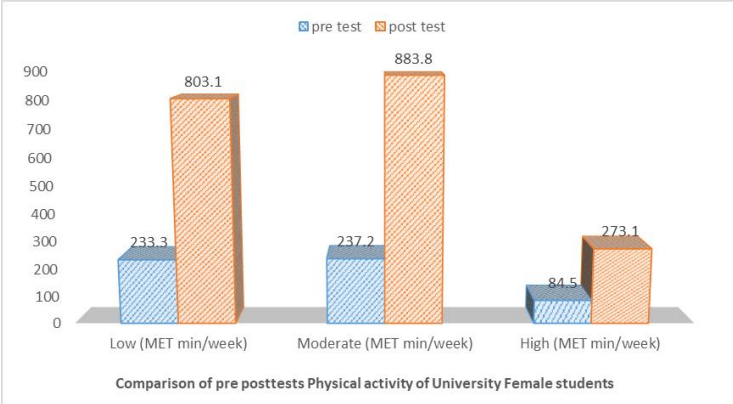

Figure 1. Comparison of pre post-tests Physical activity of University Female students

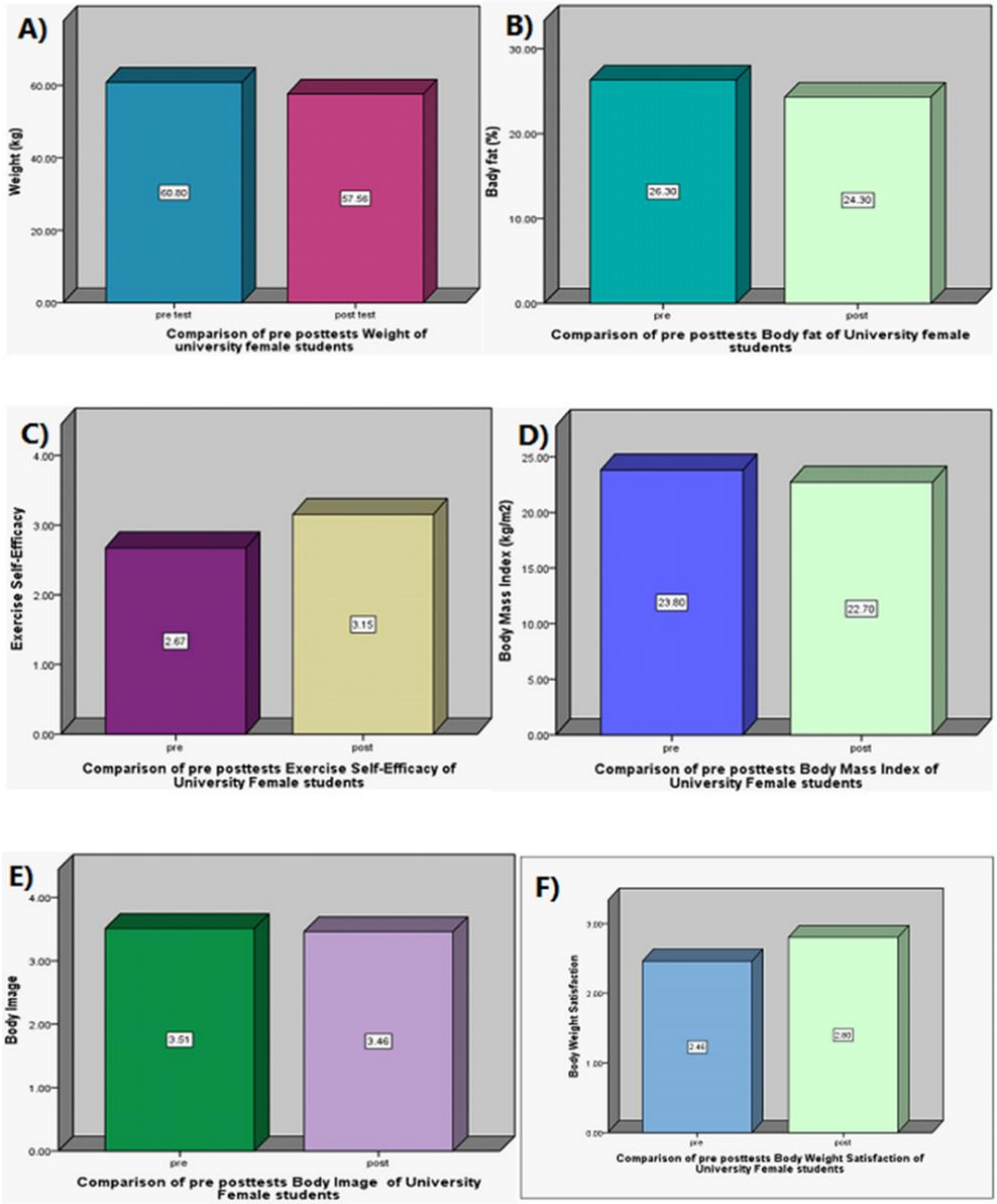

Figure 2. Comparison of pre post-tests related to measured variables of University Female students

The goal of the researchers' interventional strategy in the study was to get all Emirates University (UAEU) students, especially those with stable lifestyle habits, being overweight or obese, to be more physically active. Our intervention in the study mainly consisted of giving lectures on hypoactivity diseases, walking three times a week for 12 weeks, and giving out extra reading materials to encourage physical activities.

Education in healthy nutrition methods and a focus on change in body image, exercise self-efficacy, body mass index, body fat ratio, and excess weight loss. We have noted that the strategy we followed with female students at the university led to significant improvements in achieving the study objectives in different proportions of some variables, and this is consistent with a study that indicated [31]. The main motivation for practising sports and exercising in our study during both college and high school years was to improve body shape by losing weight, improving health, and avoiding illness. This contrasts with a study that reported the above reasons and aimed to keep students healthy and increase the joy of exercising with overweight friends. The current study was not consistent with the study of Khalaf et al. [32], which insisted on high inactivity levels among female students. A recently published review study reported significant correlations between increased BMI and declines in PA levels [33].

Furthermore, a person's perception of the 'amount of effort required to perform an activity' is also involved in her assessment of whether an activity should be characterized as being of low, moderate, or high intensity. In the WHO definition of METs, "intensity" is the rate at which an activity is performed or the effort required to perform the activity [34]. This may provide a partial explanation for why students with a high BMI showed relatively high levels of moderate-high PA. An activity that requires little effort for (some) students with a low BMI may require a considerably greater effort on a subjective level for a "larger or heavier" student.

The study aimed to examine the relationships between perceived and actual BMI, body image dissatisfaction, and weight-related behaviours among university students. They were positively affected, so hopefully in the future health problems will be avoided and their body image misconceptions will be satisfied. Most participants perceived

an accurate BMI [35], but some other students in India, Pakistan, and Karachi showed different weight results.

An interesting finding in this study [36] is that although the prevalence of overweight and obesity among the study participants was low, a high rate of BID was observed. This might be explained by the idea that BID reflects the subjective component of one's body image and the degree of satisfaction with one's own body size or specific body parts, while BMI reports the physical body measurement of a subject's weight and height. However,

Study results indicated [37, 38] that there was a significant gender difference in BID as well as participants' choices for weight control practices. Female students preferred a diet for weight loss, whereas male students were more physically active and less likely to follow a diet. Hence, male students were exercising more frequently than females. Females in the UAE are known to have low physical activity levels due to social norms and a lack of facilities associated with dissatisfaction with body shape.

5. CONCLUSIONS

Physical activity is a treatment that improves the quality and quality of life of the individual in preventing diseases of the age such as obesity and excess weight and improving the physiological and psychological functions of the individual, as well as helping to increase the individual's self-esteem and improve body image, the results of our current study showed that the strategy pursued with university students contributed to increasing levels of physical activity, reducing body weight and Body fat was reduced in all study variables, while there was no change between the pre and posttests in the body image variable.

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