Effect of Educational Program on life Style Pattern among Obese Students at Benha University

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Abstract

Background: Lifestyle pattern change represents the only curative treatment option for obesity. **The aim** of this study was to evaluate educational program to improve Life style pattern among obese university student. **Research design:** A quasi experimental design was utilized in this study. **Setting:** This study was conducted at Benha University which consists of 7 Practical Faculties and 8 Theoretical Faculties, all Faculties were be included in the study. **The sample:** A convenient sample was used in this study; the total sample included 200 students. **Tools:** Four tools were used **(I):** A structured interviewing questionnaire which consisted of two parts to assess **a):** Demographic characteristics of students **b):** Knowledge of students about obesity, **II):** Arthrometric measurement of obese university student **(III):** Designed to lifestyle practices. **(IV):** Likert scale to assess attitude of obese university students and life style pattern among obesity student. **Results:** 63.0% of the studied students had poor knowledge pre implementation of the program compared by 58.0% of the studied students had good knowledge about obesity post implementation of the program while 25.5% of the studied students had satisfactory practices pre implementation of the program and increase to 77.0% of studied students had satisfactory practices about healthy practices post implementation of the program, and 58.5% of the studied students had positive attitude pre implementation of the program which increase to 77.5% post implementation of the program. **Conclusion:** The health educational program succeeded to improve knowledge, practices and attitude of the obese students post educational program. **Recommendations:** Designing weight loss program that include more appropriate dietary and exercise counseling

Key words: Health educational program, Obese Students, Lifestyle pattern

Introduction:

University years are the most critical period of development of students one such period is the transition from late adolescence to early adulthood. People aged 18 to 29 with some university education appear to be at an even greater risk of weight gain. University is therefore a critical period for weight gain, due to unhealthy changes in eating behaviors in students. This is true across the world because students are thought to gain (6.8 kg) on average during university studies. With the transition from structured secondary school to university, comes an increase in independency and exposure to different social circumstances of eating. Several factors have been identified as influencing eating behavior. **(Shehata, 2021).**

Transitioning from high school to college can be a big change for students as embark on their own, with many moving away from family and friends for the first time. For those stressing over this new life

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chapter and today's uncertainties, there are ways to prepare before starting those first classes. From researching academic support to developing strong interpersonal skills, the following tips can help incoming freshmen get organized and build a foundation for college success (**Mitchell et al., 2021**).

Obesity is increase of fat deposition in the body which affects the individual's health, which is classified as overweight and obesity according to Body Mass Index. For adults' overweight is Body Mass Index (BMI) greater than or equal to 25kg/m2 while obesity is equal to or more than 30kg/m2. Obesity there are many risk factors such as family history, high calorie diet, and lack of exercise, smoking, stress, pregnancy, bad behavior, personal socioeconomic status, aging and decrease in sleep duration. **(Shehata, 2021)**

Lifestyle is the interests, opinions, behaviors, and behavioral orientations of an individual, group, or culture, abnormal lifestyle such as physical inactivity, unhealthy diet, as well as tobacco smoking are associated with mortality and development of numerous chronic diseases, such as obesity, type-2 diabetes, cardiovascular diseases, hypertension and various types of cancer. It has been estimated that 53% of deaths in adults are due to unhealthy lifestyles behaviors such as extreme alcohol intake, smoking, physical inactivity and poor diet; as a consequent, lifestyle risk factors cause considerable costs for society and health care system (**Shepl, 2018**).

Community Health Nurses (CHNs) are the largest group of professional health care service providers. CHNs as a care provider participate in long-term management of obese university students. Long-term management should focus on early recognition and effective treatment of complications, promoting a healthy life-style by encouraging adequate nutrition, an increase in physical activity, compliance with the drugs and minimizing the inherent side-effects of the drugs, prevention of infection, maintenance of regular health checks, and active treatment of obesity and promoting health. Compliance with a healthy lifestyle is important. Community health nurses meet student's physical and psychological needs. With active management, students will lead a healthy and active life (**Neuberger, 2019).**

Significance of the study:

In Egypt, Annually, about 4.7 million deaths occur due to obesity. It was ranked fifth among the leading preventable causes of death, making up 8.4% of deaths worldwide in 2017.According to the World Health Organization (WHO), Egypt ranks 18th subscribe with the highest prevalence of obesity worldwide. Deaths attributable to non-communicable diseases represent about 71% of the total mortality burden. Very few studies have been published about the burden of diseases in Egypt in general, and the burden of obesity is even more complex as the impact of obesity is a result of its co-morbidities rather than a direct effect, which makes it more difficult to estimate the burden of obesity. **(WHO, 2021)**

This study is important because high prevalence of university students suffering from obesity, so educational program considered the chance of cure. Obese students are at risk for common complications in this critical period, so educational program to improve knowledge, practice and attitude of university students is important in preventing expected complications and achieving the best possible improvement.

Aim of the study:

This study aimed to evaluate the effect of educational program to improve life style

pattern among obese students of Benha university.

Research hypothesis

Educational program was able to improve life style pattern among obese students of Benha university students after implantation their educational program

Subject and method:

Research design:

A quasi-experimental design was utilized in this study.

Setting:

This study was conducted at Benha University which consists of 7 Practical Faculties and 8 Theoretical Faculties, all Faculties were be included in the study, Practical Faculties include Benha Faculty of Engineering ,Shobra Faculty of Engineering, Faculty of Science, Faculty of Medicine ,Faculty of Veterinary Medicine, Faculty of Nursing, and Faculty of Agriculture, while Theoretical Faculties include Faculty of Computer and Artificial Intelligence, Faculty of Commerce, Faculty of Arts, Faculty of Applied Arts , Faculty of Specific Education , Faculty of Education, Faculty of Law.

Sampling:

Purposive sample was used in this study. All obese students were included in the study from previous mentioned settings throughout the beginning of the study with the following criteria:

- In the first year of the faculty
-obese students
- Free from any chronic disease
-BMI more than 30

Sample size:

The sample chosen from the previous setting by assessment of body mass index in the first year of the faculty according to attendance to faculty. 200 students included in the study according to attendance to faculty.

Tools for Data Collection: Three tools were used to collect the data:

Tool (I): A structured interviewing questionnaire used in this study.

It was developed by the researchers based on literature review of the current and past available national and international references related literature about obesity by using a journal, textbooks and internet search, it was written in simple clear Arabic language: It composed of the following four parts:

The first part: It was designed to assess demographic characteristics of university students. It included (7 questions); age, sex, marital status, educational level, occupation, residence, family income.

The second part: Concerned with knowledge of obese university student about obesity it included (4 questions): obesity (10 items); Obesity, management of obesity (12items); healthy nutritional requirement need obesity (6items), importance of mineral and source of nutritional element (11items).

Scoring system:

Knowledge score for each answer was given as follows: 2 for complete &correct answer, 1 for incomplete & correct answer and 0 for incorrect answer and don't know, so total scores of knowledge = 82 points = 100%. All items of knowledge scores were considered good if the score of the total knowledge > 75% (> 62 point), while considered average if it is equal 50%-75% (41-62 point), and considered poor if it is less than 50% (<41 point).

Tool (II): A- concerned with arthrometric measurement of obese university student it included (3 items) (height, weight, body mass index) the students height and weight measured and body mass index calculated by the researchers.

B concerned with practice of (crunches ,push-ups and squats exercise) it included (16 items).

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Scoring system

Practice score for each answer response was given as follows: Done and not done. These were respectively scored 1 for done, and 0 for not done. These scores of the items were summed up and the total divided by the number of the items giving a mean score. These scores were converted into percent score.

Tool (III): Lifestyle practices as reported by obese university students which covered the following parts:

(A): Lifestyle practices among obese students which included eating habit, sleeping, recreational activity and exercise and physical activity.

(B): Concerning life style practice of obese university student as reported by the students consisted of 26 items.

Scoring system

Practice score for each answer response was given as follows: Done and not done. These were respectively scored 1 for done, and 0 for not done. These scores of the items were summed –up and the total divided by the number of the items giving a mean score. These scores were converted into percent score. As well as students total practice score was classified as following:

Total scores of practices = 26

- Satisfactory: when the total score more than >60% = (> 16).
- Unsatisfactory: when the total score less than <60% = (<16).

Tool (IV): Scale to assess attitude of obese university students and life style pattern which included (17) items. The scale was measured on a Likert type of (agree, strongly agree and dis agree) which modified by researchers to assess the impact physical, psychological and social status on lifestyle of students. It was translated into Arabic by the researchers and divided into two domains:

1- life style pattern which included (8) items.

2- Obesity attitude which included (9) items: The ideal body can be achieved by applying a balanced diet every day, obesity reduces self –esteem and self –confidence, it is hard to keep at healthy weight,

obese people should try to lose weight, describe weight as being below normal weight, describe weight as close to normal weight,

describe your weight as more normal weight, practicing sport once a weak help protecting the digestive system and believing maintaining an ideal body weight is the goal of improving only the external.

Scoring system:

Life style scale score was calculated as (2) scores for strong agree, (1) scores for agree and (0) for disagree. The score of the items was summed- up and the total divided by the number of the items, giving a mean score. These scores were converted into a percent score. The total life style score (34). The score was considered good if the score >75% (>26) points, while considered average if its 50- 75% (17-26) points, and considered poor if it <50 (<17) points.

Content validity of the tools:

Content validity of the tools was done by five of Faculty's Staff Nursing experts from the Community Health Nursing Specialties Faculty of Nursing Benha University who reviewed the tools for clarity, relevance, comprehensiveness, and applicability and give their opinion.

Reliability of the tools:

Reliability of the tool was applied by the researchers for testing the internal consistency of the tool, by administration of the same tools to the same subjects under similar condition on one or more occasion. Answers from repeated testing were compared (test-re-test reliability). The reliability was done by Cranach's Alpha coefficient test which revealed that each of the three tools consisted of relatively homogenous

items as indicated by the moderate to high reliability of each tool. The internal consistency of the knowledge was 0.96, while practices were 0.73, and attitude was 0.70.

Ethical consideration:

All ethical issues were assured; oral consent has been obtained from each student before conducting the interview and given them a brief orientation to the purpose of the study. Students were also reassured that all information gathered would be confidentially and used only for the purpose of the study. The students had right to withdraw from the study at any time without giving any reasons.

Pilot study:

The pilot study was conducted on10% (20) student who taken at the period of one month and half. The pilot study was aimed to test the content, clarity, applicability and simplicity of the tool using the interviewing questionnaire and the observational checklist as a pre-test sheet. The estimation of the time needed to fill the questionnaire time needed to fill each sheet consumed about 30 minutes. No modifications were done, so the pilot study sample was included in the total sample.

Field work:

The researchers implemented the program through three phases as the following:

Preparatory phase:

Assess knowledge and practices of obese university student about life style pattern and preparation of the study design and data collection tools was based on extensive review of the current and past available national and international references related literature about obesity by using a journal, textbooks and internet search to contrast the tools. This was necessary for the researcher to be acquainted with and oriented about aspects of the research problem as well as to assist in the development of data collection tools. Also prepared hand out

for studied students that included all items about obesity, this took about two months for preparing the tools.

The data was collected from students who attended in the previously selected mentioned settings through the interview with them. The study was carried out over a period of sex months which started from the half of October 2020 to the end of April 2021 . The researchers was attended two days/week (Sunday, Tuesday) to the faculties   from 9.00 am to 2.00 pm. The data was collected from students after taking their acceptance to participate in the study. The researcher explained the aim of the study for each participant student with assuring that the participation in the study is a choice, the participant student is able to withdraw at any time. The researcher collected the data through six sessions; each session took about 30 to 45 minutes. The researcher had a scale for measuring weight and height and this scale was used with students who didn't know the height and weight while body mass index was calculated for all students. Each participant student filled in a sheet which was written in a simple, clear and suitable language for their understanding level .The average number of interviewed students was 3-5 students per day.

Implementation phase

The interview questionnaire conducted by the researchers for data collection in the selected setting, after getting the necessary official permission; the researcher introduced herself and asked the questionnaire used simple Arabic language. Implementation of the program done through sessions, the number of sessions were 6 (3 theoretical and 3 practical), The expected duration of each session was from 30 to 60 minutes, used group discussion also booklet utilized, with clearance of general and specific objectives as follow:

Contents of Educational program: Included the most important information related obesity

and life style (define lifestyle, list type of lifestyle pattern, explain improvement of lifestyle, define overweight and obesity, identify the body mass index and its classifications, explain some examples show how to calculate a BMI, identify patterns of obesity, define the symptoms of obesity, define lifestyle and problems associated with obesity, recognize the protection of obesity at the level of prevention, enumerate causes of obesity, enumerate complications of obesity, describe the social and psychological effects of being obese, list treatment of obesity, recognize instructions about behavioral therapy for obesity, identify attributes and aspects of behavioral therapy for obesity, list type of diet and learn slimming program, identify the role of physical exertion, list some of the clinical protocols used in the treatment of obesity, learn about tips and advice for slimming, apply Crunches exercises, push-ups exercise and Squats exercise)

First session: At the beginning of the first session, the researcher introduced herself to the obese university student, an orientation to the intervention was given, take oral informed consent of students, set an agreement on the number, time and duration of sessions. The researcher provided a trust, warm and secured atmosphere between students and relieved anxiety, tension and increased motivation for participate in all sessions of the nursing intervention provided introduction about meaning of program about its basic rules and expectations of students. Lifestyle, type of lifestyle pattern, improvement of lifestyle, overweight and obesity,

Second session: Covered the body mass index and its classifications, some examples show how to calculate a BMI, The patterns of obesity and the symptoms of obesity.

Third session: Covered Lifestyle and problems associated with obesity, The

protection of obesity at the level of prevention, causes of obesity and complications of obesity.

Fourth session: Covered The social and psychological effects of being obese, treatment of obesity, Instructions about behavioral therapy for obesity, attributes, and aspects of behavioral therapy for obesity.

Fifth session: Covered type of diet and learn slimming program approved medications in treatment of obesity, Role of physical exertion in the treatment of obesity, Some of the clinical protocols used in the treatment of obesity, healthy nutritional requirement.

Six session: Covered tips and advice for slimming, crunches exercise, push-ups exercise, squats exercise .

Methods of teaching:
- Demonstration and re-demonstration.
- Role play

Evaluation phase:
Evaluation of the program was done immediately and after the end of the program by using the same pre/post test questions.

Statistical analysis:
The collected data were organized, tabulated and analyzed using appropriate statistical test. The data were analyzed by using the Statistical Package for Social Science (SPSS) version 21, that was used to calculate frequencies and percentages mean and standard deviation, also statistical significance and associations by using Chi-square test, it was a test used to study association between two qualitative variables and matrix correlation to detect the relation between the variables for (p value).

The observation difference and associations were considered as following:

Highly significance (HS) $p < 0.001$
Significance (S) $p < 0.005$
Not significant (NS) $p > 0.005$

Results:

Table (1): Shows that; 92.5% of the studied students aged 18 to less than 20 with mean age was 19.015 ± 0.419 years, all of the studied students was single, while 40.5 % of them family number was from 4 to 5 persons.

Figure (1): Shows that; 37.5% of the studied students were males, and 62.5% of them were female

Figure (2): Reveals that; 12.5% of studied students had good knowledge about obesity pre-program, however post program increased to 58.0%, and 63.0% of students had poor knowledge pre-program compared by 15.5% post program

Table (2): Shows that the mean of weight of the studied students ranged from 85 to 115 kg is 100.07 ± 7.23 while the mean of BMI ranged from 36.3 to 40.4 is 37.45 ± 0.87.

Table (3): Shows that; 20.0% of studied students had done the knees are bent and the feet rested on the ground compared by 90.0% of students post program. While 78.5% of

students had done place hands behind the head compared by 80.0% of students post program. There were highly statistically significant difference regarding all items related to studied students regarding their crunch exercise practices, pre -post program implementation (p <0.003).

Figure (3): Reveals that; 25.5% of students with satisfactory practices at pre- program implementation and increased to 77.0% post program. And 73.5% of studied students' practices were unsatisfactory at pre- program intervention compared to 23.0% of students post program implementation.

Figure (4): This figure shows that; 58.5% of the studied students had positive attitude preprogram which increased to 77.5% post program.

Table (4): Shows that; there was a positive statistically significant correlation between the studied student` total practices score and total knowledge score pre and post program

Table (1): Frequency distribution of studied students regarding their demographic characteristics (n=200).

Demographic Characteristics	No.	%
Age		
18 to < 20	185	92.5
≥ 20	15	7.5
Min – Max	18	21
Mean ± SD	19.015	0.419
Marital status		
Single	200	100.0
Family number		
Less than 4	75	37.5
From 4 to5	81	40.5
More than5	44	22.0

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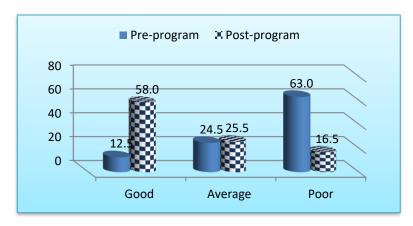

Figure (1): Percentage Distribution of studied students regarding their total knowledge level pre and post program (n= 200).

Table (2): Mean and standard deviation of studied students regarding their anthropometric measurement

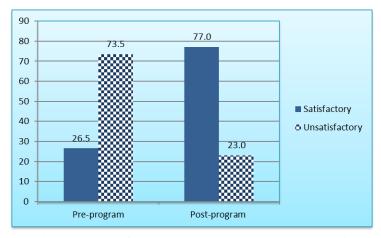| Items	Min	Max	Mean	±SD
Weight	85.0	115.0	100.07	±7.23
Height	150.0	175.0	163.38	±6.14
BMI	36.3	40.4	37.45	±0.87

Figure (3): Percentage Distribution of studied students regarding their total practice level pre and post program (n=200).
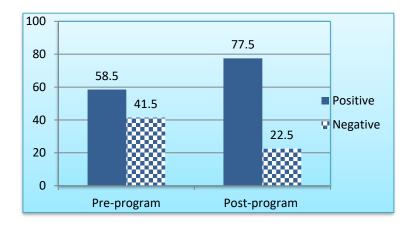
Figure (3): Percentage Distribution of studied students regarding their total attitude level pre and post program (n=200).

Table (3): Correlation between total knowledge, practices and attitude pre and post program

Items	Total knowledge			
	Pre program		Post program	
	r	p-value	r	p-value
Total practices	0.215	0.002*	0.239	0.007*
Total attitude	0.272	0.000**	0.259	0.834

*Statistically significant   ** Highly statistically significant

Discussion:

University student are the future masters of the society. A clear and well-developed identity and favorable self-concept promise positive development through students and even across a whole life span. Self-concept is crucial to a student's health and well-being throughout life that is the mental image or picture of self, has the power to encourage personal growth **(Hammond et al., 2020).**

University students are often busy with their studies and tend to spend a lot of time outside their homes and hence, are prone to fall victim to eating practices that are unhealthy, gradually leading to an increase in body weight, who estimates the prevalence of obesity to be generally higher in women than in men. Nonetheless, recent studies on college students reveal otherwise, showing increased rates of obesity in male students as compared to female students **Syed e t al., (2020).**

According to demographic characteristics of the studied students, the current study revealed that; majority of studied students aged from 18 to 20 years old, with mean age was 19.015 ± 0.419. This finding was in the same line with **Anupama et al., (2017)**, who studied a study on "Prevalence of Obesity and Life-Style Behavior among Medical Students in Sri Siddhartha "(n = 200), who reported that the mean age of the studied students was 19.91 ± 1.573 years. While, this finding was disagreement with **Sogari et al., (2018),** who studied "The College Students and Eating Habits: A Study Using an Ecological Model for Healthy Behavior, USA "(n=35), and reported that the mean age of the participants was 20.4 ± 1.5 years .This might be due to

choosing the first year of the university students in the study.

Regarding numbers of the family members the present study showed that, less than half of studied students their family members ranged from 4 to 5 members. This result is contradicted with **Bandy, (2018**), who conducted study about "Health Educational Program to Enhance Self-concept among Female University Students in Chicago" on 122 female students revealed that less than two fifth (38%) of the study sample their family members ranged from 1 to 3 members.

Concerning the marital status of the studied students, the present study revealed that; all of the studied students were single. This study finding agreed with **GilLacruz et al., (2020)**, who conducted a study on "The Health-Related Quality of Life in Young People: The Importance of Education. Health Quality Life Outcomes, Zaragoza "(n=244), and reported that the vast majority of the participants were unmarried (95.9% boys, 94.3% girls) and lived with their parents. This might be due to students in the first year of university and still young for responsibility.

Regarding to total knowledge of the studied students, the present study revealed that; less than two third of the studied students had poor knowledge pre implementation of the program and more than half of the studied students had good knowledge post implementation of the program. This finding was consistent with **Lonsdale et al., (2018)**, who studied "Improving Obesity Prevention among University Students Through a Tailored Information Design Approach in Leeds", who reported that there was significant improvement in the overall knowledge level before and after the education program for the studied students. This might be due to that the

program helps the studied students to acquire knowledge about obesity.

Considering mean and standard deviation of studied students regarding their anthropometric measurement, the result of the present study revealed that; the mean of height of studied students is 163.38 ±6.14. This finding in the same line with **Anupama et al., (2017)**, reported that the mean of height of studied university students is 164±8.737

Concerning distribution of studied students regarding their crunch exercise practices, the present study results showed that; less than one quarter of the studied students done the crunch exercise practices pre implementation of the program and most of the studied students done the exercise post implementation of program. This study finding was in agreement with **Multani et al., (2019)**, who studied "The Effect of Core Strengthening on Cardiovascular Fitness and Flexibility in Obese Individuals Exercise, India", and reported that all participant done crunch exercise and the study showed positive result with ($p<0.05$) which suggests that core strengthening improves cardiovascular fitness and flexibility in obese individuals. This might be due to the need to lose of weight.

Regarding to total attitude of the studied students, the present study revealed that; more than three quarter of the studied students had positive attitude and there was improvement in all items during pre-post program $P>0.001$. This study finding was consistent with **(Ju-Hee & Soo-Wan, 2021)**, who studied "Effects of a Lifestyle Intervention on Health-Promoting Behavior, Psychological Distress and Reproductive Health of Overweight and Obese Female College Students , Jeonbuk Province, South Korea" and reported that the studied students had positive attitude and had a significant effect on improving health-promoting-

behaviors in overweight or obese female college students, reducing psychological distress, and improving reproductive health, weight loss, and body composition. This might be due to the effect of the program that help in improving students attitude post program.

Regarding correlation between total knowledge, total practices, in the current study there was statistical positive correlation between total knowledge, total practices, This finding was in the same line with **Najim, (2014)**, who found that, the health educational intervention program had positive effects on knowledge, practices and attitudes regarding over-weight/obesity.

Conclusion:

The health educational program succeeded to improve knowledge, practices, attitude and life style of the studied obese university student. less than two third of the studied students had poor knowledge pre implementation of the program and more than half of the studied students had good knowledge about obesity post implementation of the program, more than one quarter of the studied students had satisfactory practices pre implementation of the program and increase to three quarter of studied students had satisfactory practices about healthy practices post implementation of the program, and more than half of the studied students had positive attitude pre implementation of the program and increase to more than three quarter of the studied obese university student had positive attitude about healthy lifestyle post implementation of the program. There were positive statistically significant correlations between the studied obese university student ' attitude and total practices and total knowledge pre and post implementation of program. attitude and total practices and total knowledge

pre and post implementation of program.

Recommendations:

1- Continuous application of health educational program for obese university student to enhance student s` knowledge, practices and attitude about healthy life style pattern.

2- Designing weight loss program that include more appropriate dietary and exercise counseling

3- Further research are proposed to explore the effect of health educational program on the prevention of complications of obesity.

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تأثير برنامج تعليمي علي نمط حياة طلاب جامعة بنها الذين يعانون من السمنة

جليلة حسن حسانين – محبوبة صبحي عبدالعزيز- هديه فتحي محيي الدين

السمنة هي حالة طبية تحدث عندما يعاني الأفراد من زيادة الوزن أو الدهون في الجسم والتي قد تؤثر سلبًا على صحتهم. تزيد الإصابة بالسمنة من مخاطر ارتفاع ضغط الدم ، وأمراض القلب التاجية ، والأمراض الدماغية الوعائية ، وداء السكري من النوع 2 ، والاكتئاب ، وهشاشة العظام ، وسرطان الثدي والقولون ، والتي تعد من بين الأسباب العالمية الرئيسية لمراضة ووفيات البالغين. لذلك هدفت هذه الدراسة الى تقييم تأثير برنامج تعليمي علي نمط حياة طلاب جامعة بنها الذين يعانون من السمنة. وقد تم استخدام التصميم شبه التجريبي لتحقيق هدف الدراسة. وقد أجريت هذه الدراسة بكليات جامعة بنها (7 كليات عملية و8 كليات نظرية) على 200 طالب/طالبة من الطلاب. وقد لخصت الدراسة بان البرنامج التعليمي نجح في زيادة معلومات وممارسات الطلاب الذين يعانون من السمنة . وقد أوصت هذه الدراسة عن تنفيذ برنامج تثقيفي للطلاب للتقليل من الوزن والتوعية بممارسة الرياضة وتحسين مستوى حياتهم.