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The Influence of awareness, Health Education on Knowledge and Attitudes about Diet for Obesity Prevention in Students at Saudi Arabia 2024

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Abstract

Background

Inadequate nutritional awareness may lead to harmful eating habits and poor diet quality. Nutrition education interventions have shown to improve nutritional knowledge and behaviors Obesity, being a widespread epidemic, affects individuals of all age categories, spanning from children, teenagers, and adults, to the elderly. The swift escalation of obesity cases is giving rise to an increasing array of ailments, thus evolving into a significant health dilemma. Globally, vitamin D insufficiency stands out as a prevalent issue, ranking high among common conditions that are preventable. Hence, it becomes crucial to survey the depths of public consciousness and perceptions regarding this deficiency, pinpointing areas where daily routines could potentially hinder the maintenance of adequate vitamin D levels within their systems. Obesity and overweight are major public health problems that are considered global pandemic due to disease and biological risk factors linked to non-communicable diseases. mass index (BMI) of higher than 25 and 30 kg/m2, for overweight and obesity .

The study aimed: To influence of awareness, Health Education on Knowledge and Attitudes about Diet for Obesity Prevention in Students at Saudi Arabia 2024.

Method: Cross-sectional survey was utilized students in in Saudi Arabia 2024 during the July to November , 2024, a total of 300 student aged 12–18 years, available students. A structured self-reported questionnaire sheet was used to evaluation effected of health education on knowledge and attitudes about diet for obesity prevention in students at Saudi Arabia 2024.

Result: the habitual factors associated of Obesity the studied regarding the you have any complications from obesity most of participants answer Yes (53.0%), follow by No were(47.0%), regarding Smoking cigarette most of participant Non-smoker were(64.0%) follow by quit smoking were (23.19%) while smoker were (13.0%), regarding the BMI status most of participant normal weight were (62,0%) followed by overweight were (21.0%) but the obese were (17.0%)

Conclusion: Nutrition education interventions especially school based done in Saudi Arabia had significantly improved nutritional knowledge, physical activity, body image satisfaction and BMI. Effected of health education on knowledge and attitudes about obesity prevention diets for students at Saudi Arabia.

Keywords: Influence, awareness, Health Education , Knowledge, Attitudes, Diet, Obesity Prevention, Saudi Arabia .

Introduction

The Obesity is a permanent health issue of our time that causes constant anxiety and is a heavy burden on those afflicted with it due to its effects on their psychological and aesthetic appearance and the permanent risks it poses to health and life (1). Obesity is an increase in body weight of more than 20% of the ideal weight or body mass index, that is, weight (kg) divided by square height (m) and expressed in units of kg/m² (2).

Dietary and lifestyle choices have changed since 1980, with a noticeable rise in eating out and at restaurants, leading to bigger portion sizes (3). Energy-dense and nutrient-poor diets dominated by fats, sweets, and processed foods have replaced diets rich in whole foods such as pulses and whole grains, which are low in refined oils and sugars (4).(Four of the top 10 causes of death, including obesity, several types of cancer, and coronary heart disease, caused by current eating trends (5). Among the leading causes of premature deaths worldwide are cardiovascular illnesses, type 2

diabetes mellitus, and various malignancies. Each year, 17.9 million people die from cardiovascular diseases, followed by 9.3 million from cancer, and 2.0 million from diabetes (6). Poor-quality nutrition and improper eating habits are major contributors to many chronic disorders (7). Diet-related risk factors were responsible for 7.9 million deaths and 187.7 million disability-adjusted life years (DALYs) lost in 2019 (8). Because of facts such as these, nutritional issues have received more attention in the last 10 years.

Obesity is a state of imbalance between incoming energy and outgoing energy over a long period of time (9). The amount of energy consumption from digested food exceeds the energy used for metabolism and daily activities. This excess energy will be stored in the form of fat and adipose tissue so that it can result in weight gain, health quality. At this time, there are still many nutritional problems that can affect the quality of health, one of which is the problem of being overweight/obese (10)

The prevalence of adult obesity has increased threefold globally in the last four decades (11), according to WHO. There is a growth in obesity rates around the world (>1 billion). In Europe, two thirds of the adult's population is obese (12), whereas, in Saudi Arabia, more than half the adults are considered obese, which is also the case in Arabian gulf countries (13). Obesity and overweight causes are complicated by environmental, genetic, behavioral, and socioeconomic factors. It is well-known that dietary intake and physical activity are risk factors linked with obesity and overweight (14)

In Saudi Arabia, obesity and overweight increased due to shifting lifestyles because of the growth of the economy, technology, food availability, variety, and changes in the population's living standards. (15) This led to changes in food choice, energy intake and energy expenditure. A high snack frequency (unhealthy crisps, sweets, and carbonated beverages), skipping daily breakfast, and emotional eating are harmful dietary habits significantly associated with a higher BMI that were found in the Saudi population (16)

According to a study of obesity and eating habits, it found that there is a rapid socio-cultural change because of the growing economy of the Saudi Arabia. This has affected the eating patterns and thus it has reported for the recent increases in overweight and obesity among Saudi population. (17) Another important factor in obesity is psychological stress such as life in adolescent period. (18) Adolescent period can play a significant role in encouraging healthy behavior in students. Unhealthy lifestyle is prevalent among school students and therefore there is a need to integrate health education programs for school students.(19)

In addition, some Saudis are physically inactive because of the weather, culture, and lack of time and equipment (20). Sedentary lifestyles in the Saudi population because of sedentary jobs, long car trips, and watching screens (computer, mobile, television and games) for more than 8 hours per day contribute to the physical inactivity of Saudi adults (21).

During the transition from adolescence to adulthood, the acquisition of nutrition knowledge may still be related to schooling, where one acquires information from qualified sources without personal interpretation.(22) Simultaneously, the social environment, including social media, can be an important source of nutrition information and attitudes towards food and nutrition (23). The growing exposure to web information may contribute to increasing false beliefs. Nevertheless, an individual characterized by subjective knowledge (24).

The prevalence of Obesity is common in KSA, so there is a need to explore' awareness of Obesity in the primary care physicians in toward management of Obesity .So that policymakers can devise policies to educate the young generation (25)

The prevalence of Obesity in various regions has attracted significant attention of the medical experts, also thereby increasing disease the prevalence of diabetes and Obesity is expected to increase in the future due to changes in lifestyle and unhealthy diets of individuals in KSA (20)

Literature Review

Several studies have examined the association between overweight/ obesity and academic performance among students at different grades of elementary education, with conflicting findings. For example, several studies reported reduced academic performance in obese children (20), while other studies among primary school students failed to detect such an association (12). Additionally, gender-specific variability in the relationship between overweight/obesity and academic performance reported. Obese girls had lower academic achievement compared with those of a healthy weight. However, such an association was less clear in boys (22). In Chinese adolescents, overweight perception related to lower GPA in girls only (23).There is a poor understanding of the underlying mechanisms (24). Despite the high prevalence of childhood/adolescent obesity and the importance of academic performance of high-school students in shaping their future education (25),

Study by (Aljohani et al 2021) found that results of the analysis showed that education level was a protective factor against obesity because subjects with high school education and above had a 20% lower risk of being overweight than subjects with junior high school education and below. (26) Results in line with research (Alotaibi et al., 2022) which shows that college graduates have a lower risk of obesity than primary school graduates (RR=0.96). Someone with a higher level of education will be better at receiving, processing, interpreting, and using information, especially nutritional knowledge. Subjects with higher education will have higher nutritional knowledge because they have more experience and access to information so they can have better nutritional attitudes and practices, especially in terms of food consumption behavior and physical activity which are closely related to obesity.(27)

Some studies have shown that a self-perceived level of competency is a stronger driver of behavior than objective knowledge. However, an individual with adequate knowledge of nutrition stands a better chance of differentiating

nutrition facts from nutrition fads to obesity prevention (26) which can affect behaviors and attitudes towards food, nutrition and obesity Many studies have reported that university students do not consume an adequate diet, which can lead to poor health and weight gain (24)
The results of one study in the US showed that knowledge in the treatment of Obesity was not enough and knowledge level of different medical groups such as general practitioners, specialists, internal medicine residents and medical students had significant differences with each other (27)
According to the World Health Organization (WHO), in 2016 obesity in children and adolescents aged 5-19 years was more than 340 million obese. From 1975 to 2016, the prevalence of overweight or obese children and adolescents aged 5-19 more than quadrupled, from 4% to 18% in a manne global (West Java Health Office, 2020). The increase was similar for boys and girls: in 2016 18% of girls and 19% of boys were overweight (28) .
On the other hand, students' nutrition knowledge varies from poor to satisfactory, previous studies have shown that insufficient knowledge about healthy nutrition causes many inappropriate eating behaviors and obesity (29), while high nutrition knowledge was significantly associated with healthy eating behaviors, for example, with the intake of fruits, cereals, dairy products, and pulses (30) However, studies to date that have addressed the relationship between nutrition knowledge and behaviors have primarily considered the consumption of selected food groups rather than overall diet indices. (23)

The study aimed

To influence of awareness, Health Education on Knowledge and Attitudes about Diet for Obesity Prevention in Students at Saudi Arabia 2024.

Methodology

Study design:

Cross-sectional design in the present study with Stratified Random Sampling

Study area and population:

The population in this study were students of the were listed as students in age <14 to above 16 with a total population of 300 students in Saudi Arabia

Inclusion criteria

- Student's obesity.
- < 14 years and above than 16 years
- Both males and females.

Sample size:

Sample size was calculator by Raosoft Online sample size calculator ·It was 300 student's obesity, based on assumption that during the last 4 weeks, prevalence was considered as 50%, confidence level was 95%, and margin of error was 5%. By adding 10% for defaulter and non-respondent, 300 students were invited to participate in the study.

Sampling technique

The sampling technique used Proportionate Stratified Random Sampling with 300 respondents. Thus, nearly 30 working days were needed to collect the sample

Data collection tool

Self-administrated questionnaire was used for data collection. It was adopted from a previous Saudi study. Some modifications were done and the new format was validated by three consultants (family medicine, Endocrinology and community medicine). The final draft of the questionnaire consists of two sections:
-First section: Includes socio-demographic and personal characteristics of the participants.
-Second section: Includes associated factors with obesity (physical exercise, diet habit. Additionally, the body mass index (BMI) was calculated by an expert nurse.
Data collection used a knowledge questionnaire in the form of closed questions, and an attitude questionnaire using a Likert scale of statements

Data Collection technique.

- During the study period (during the July to November, 2024), the researcher was available at the involved conducted secondary school students
- The researcher distributed the questionnaire in the waiting area by themself to the selected student.
- The questionnaires were collected at the same time.

Data entry and analysis

Data were entered and analyzed using the Statistical Package for Social Sciences (SPSS version 24). Categorical variables were presented as frequency and percentage whereas continuous variables were presented as mean and standard deviation (±SD).
Statistical significance was determined at $p<0.05$ for all comparisons.

Pilot study/pretesting

A pilot study was conducted on 20 patients, representing approximately 10% of the sample size. It was done in another school student at Saudi Arabia rather than those involved in the study to test the clarity of the questions and feasibility of the methodology. No modifications were made according to the pilot results.

Ethical considerations

Research committee approval ,Written permission from the joint program of medicine in Saudi Arabia , written permission from concerned school authority in Saudi Arabia , Individual verbal consent from all participants before data collection Acknowledgments of all supervisors, advisors, helpers, facilitators and participants. All collected data were kept confidential.
Budget: Self-funded

Results

Table 1. Distribution of Socio-demographic characteristics of the studied participated (Age, Gender, Marital status, Level of education)(n-300)

	N	%
Age		
<14	90	30
14-16	87	29
More than 16	123	41
Sex		
Male	174	58
Female	126	42
Income level		
Below 5000 SR	93	31
5000 – 10000 SR	72	24
10,000 – 20,000 SR	60	20
Above 20,000 SR	75	25
Health condition		
Healthy	168	56
Having diabetes	51	17
Having heart disease	27	9
Having hypertension	33	11
High cholesterol	21	7
Sources of information about obesity		
Booklets and brochures	135	45
Mass media	69	23
Own personal experience	96	32
Educational films	120	40

Table show the total number of participants was 300 regarding the age most participants in more than16 were (41.0%) followed by 14-16 years were (29.0%) while < 14 were (30.0%), regarding gender of participated female were (42.0%) while male were (58.0%), regarding Income level in study the most of participant's Below 5000 SR were (31.0%) while above 20,000 SR were (25.0%) but 5000-10000 SR were (24.0%) while 10000-20000 SR were (20.0%), regarding health condition in study the most of participant's healthy were (56.0%) followed by having diabetes were (17.0%) but having hypertension were (11.0%) while having heart disease were (9.0%), regarding Sources of information about obesity most of participant's booklets and brochures were (45.0%) followed by educational films were (40.0%) while own personal experience were (32.0%) but mass media were (32.0%) .

Table 2 Distribution of the habitual factors associated of Obesity the studied participated

	N	%
Do you have any complications from obesity?		
Yes	159	53
No	141	47

Smoking cigarette		
Smoker	39	13
Quit smoking	69	23
Non-smoker	192	64
BMI status		
Normal weight	186	62
Overweight	63	21
Obese	51	17

Table 2 show regarding the habitual factors associated of Obesity the studied regarding the you have any complications from obesity most of participants answer Yes (53.0%), follow by No were(47.0%) , regarding Smoking cigarette most of participant Non-smoker were(64.0%) follow by quit smoking were (23.19%) while smoker were (13.0%), regarding the BMI status most of participant normal weight were (62,0%) followed by overweight were (21.0%) but the obese were 17.0%)

Table 3 Distribution of the attitudes (Physical activities) associated about the obesity prevention in students participated

	N	%
Physical activities or exercises		
No	186	62
Yes	114	38
If yes What is type of physical activities or exercises		
Walking	126	42
Running	87	29
Both	87	29
Do you stop aerobic exercise for two consecutive days or more per week?		
Always	207	69
Sometimes	69	23
No	24	8
Risk factor		
Asthma	75	25
High blood pressure	102	34
High fat and cholesterol	66	22
Emphysema or COPD	30	10
Other lung diseases Type of lung disease	39	13
Heart diseases	45	15
Arthritis or other rheumatic diseases	96	32

Table 3 show the attitudes (Physical activities) associated about the obesity prevention in students regarding the physical activities or exercises more than half of the participants (62.0%) answer No practice Physical activities or exercise physical followed by Yes were (38.0%) , regarding If yes What is type of physical activities or exercises the majority of the participants walking were (42.0%) followed by running and both were (29.0%), regarding you stop aerobic exercise for two consecutive days or more per week the majority of the participants always were (69.0%) followed by sometimes were (23.0%) while No were (8.0%) , regarding Risk factor the

majority of the participants high blood pressure were (34.0%) followed by arthritis or other rheumatic diseases were (32.0%) while asthma were (25.0%) but high fat and cholesterol were (22.0%) while heart diseases were (15.0%) but Other lung diseases Type of lung disease were (13.0%) .

Table 4 Distribution of health education on knowledge about diet for obesity prevention in students participated

	Knowledge	
	N	**%**
Weak	171	57
Average	99	33
High	30	10
Total	300	100
X^2	99.42	
P-value	<0.001*	

Table 5 regarding distribution of health education on knowledge about diet for obesity prevention in students the most of participant answer in weak knowledge were (57.0%) followed by average were (33.0%) while high were (10.05) while a significant relation were < P-value= 0.001 and X^2 99.42 while total were (100.0%) .

Figure 1 Distribution of health education on knowledge about diet for obesity prevention in students participated

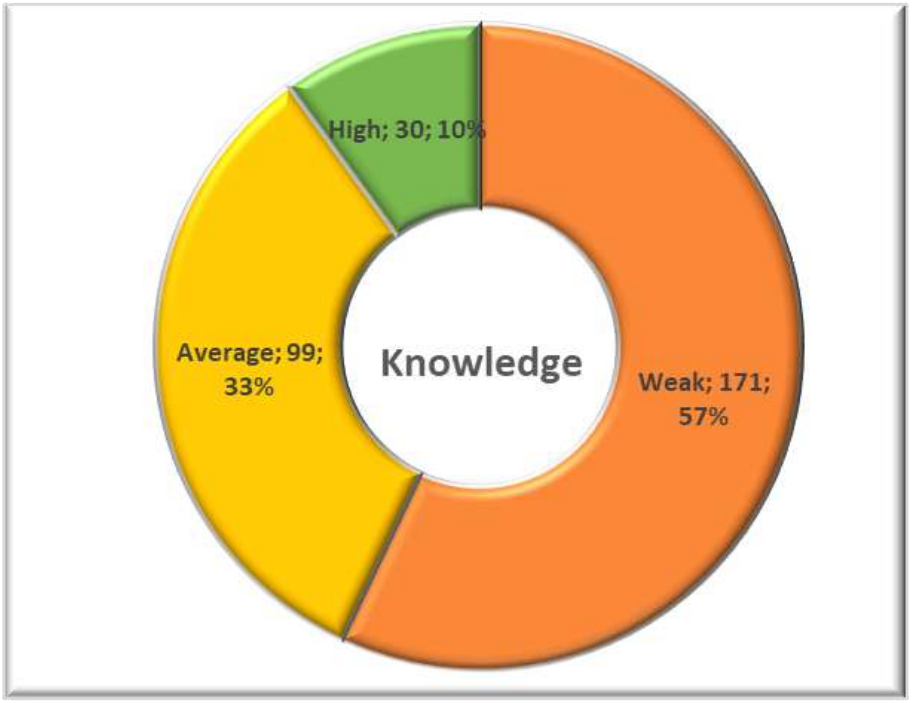
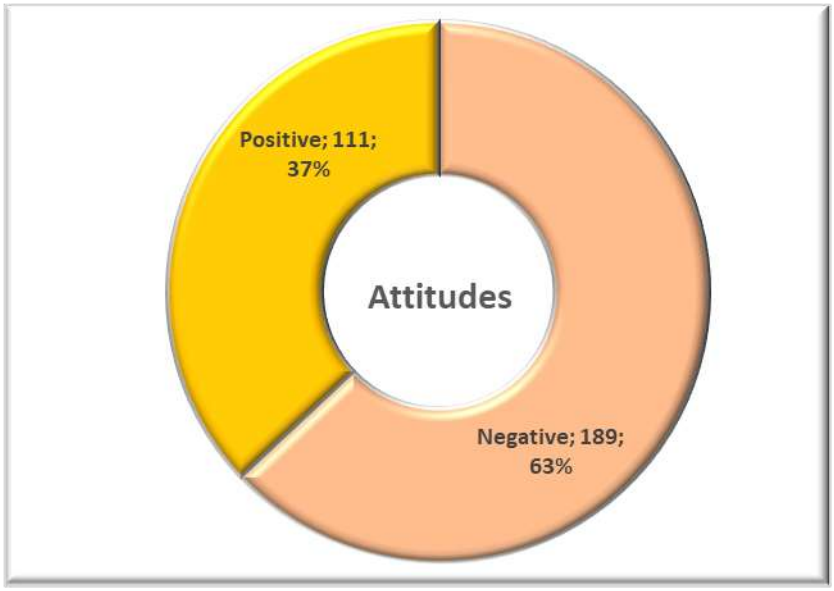


Table 5 Distribution of health education attitudes about diet for obesity prevention in students participated

	Attitudes	
	N	**%**
Negative	189	63
Positive	111	37
Total	300	100
X^2	19.763	
P-value	<0.001*	

Table 6 regarding distribution of health education attitudes about diet for obesity prevention in students the most of participant answer in negative attitudes were (63.0%) followed by positive were (37.0%) while total were (100.0%) while a significant relation were < P-value= 0.001 and X^2 19.763

Figure 2 Distribution of health education on knowledge about diet for obesity prevention in students participated



Discussion

Knowledge can be influenced by a number of variables, but education is one that can increase one's understanding or knowledge. In general, someone with a higher level of education will have a broader knowledge base than someone with a lower level of education. Knowledge can also be acquired through learning. The second is mass media/information, which includes radio, television, newspapers, magazines, and books .

This study identified in the effected of health education on knowledge and attitudes about diet for obesity prevention in students at Saudi Arabia using nationally representative sample data. First, the prevalence of obesity among student doubled from in 2019, increasing significantly by on average annually. According to previous studies, the average obesity prevalence among Saudi Arabia has been increasing, similar study since 2019, showing a remarkable increase for boys (30). The findings of this study indicate that the prevalence of obesity among adolescents in Saudi Arabia differs from that in some other developed countries, where studies have shown stable or decreasing obesity rates (27) Studies analyzing the trends of obesity among Chinese adolescents between 2015 have shown a decline in obesity rates since 2011, unlike in Saudi Arabia.(31)

Obesity and overweight are major public health problems among adolescents student, with significant health, demographic and socio-economic implications (28). Food environments have changed in past decades and obesity and overweight rates have increased dramatically in both developing and developed countries. It also investigated the factors associated with overweight/obesity. The study established that overweight and obesity prevalence is high and linked with sedentary behavior, poor eating habits and limited dietary diversity.(25)

Overweight and obesity prevalence was lower than what has been reported in the literature. Although this prevalence was similar to that in other studies (29), it was higher than the rate among pre-school student participating in a cross-sectional study conducted in twenty-six African countries. Several others have shown that urban student, because of favorable environmental and socio-economic conditions, generally manifest better nutritional status than their rural counterparts (30). A similar study among rural adolescent's school students will be necessary to confirm or refute this hypothesis in KSA. The anther survey found higher prevalence rates of overweight and obesity in girls than in boys, which concurs with other reports from low- and middle-income countries, but the opposite held true in high-income countries where overweight and obesity rates were higher in boys than in girls (29)

The present study demonstrated that the level of physical activity in Saudi Arabia has increased, although it is still relatively low. According to the WHO, around 30% of the world's population and 30–70% of those living in countries in the eastern Mediterranean region do not meet the recommended minimum level of physical activity (2). According to the Saudi STEP wise survey, the prevalence of moderate and high levels of physical activity among Saudis aged 15–64 years was 32.3% (30).

Conclusion

Nutrition education initiatives in Saudi Arabia have the potential to raise eating habits and increase nutritional awareness among a range of age groups. The evidence is conflicting, though, and variables in study design, intervention duration, delivery strategies, and cultural adaptability are probably what affect effectiveness. Few programs assessed the long-term sustainability of these changes, despite the fact that many reported excellent short-term results. To increase their impact on public health, future programs should concentrate on putting into practice evidence-based, culturally appropriate interventions with integrated lifestyle elements and thorough assessment.

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