AN ASSESS THE KNOWLEDGE AND ATTITUDE TOWARDS OBESITY AMONG A SAMPLE OF COLLEGES STUDENTS IN KARBALA PROVINCE - IRAQ

Mohammad Abdulbaqi Abdulmohsin [1], Maytham Salim AL-Nasrawii [1], Ali Abd al-latif G. Mohammed [1]

1 Technical Institute of Karbala, Al-Furat Al-Awsat Technical University-Iraq.
Corresponding author: ***Maytham Salim AL-Nasrawii***
E-mail: ***maytham.alnasrawii@atu.edu.iq***

KEYWORDS

Obesity,
Knowledge,
Attitude,
Colleges Students

ABSTRACT

Background: Obesity is a significant global public health issue, becoming increasingly prevalent as dietary habits and physical activities change. It is linked to conditions such as coronary artery disease, hypertension, gallstones, and diabetes. Young people play a crucial role in the community, and their knowledge, attitudes, and practices regarding obesity can positively impact their families and the broader community. Understanding the perspectives and beliefs of young individuals is essential. Therefore, a cross-sectional study was conducting to assess the knowledge and attitudes of undergraduate students towards obesity in Karbala Province.

Methodology: A sample of undergraduate students was surveyed to assess their knowledge and attitudes towards obesity between November 1, 2023, and April 29, 2024. The study included 444 participants chosen through a simple random sampling technique. A self-administered questionnaire, comprising two sections, was used to gather data. The first section covered demographic characteristics, while the second section assessed knowledge and attitudes based on criteria designed by the researchers according to WHO guidelines. Experts before implementation reviewed the questionnaire.

Result:- Out of the total sample in the study, 284(64%) were females and 160 (36%) males. 59.9 % of the participants was in the age group ≤ 20 years. As overall assessment for obesity knowledge level, 54 % had Good & Acceptable score. On the other hands, more than 86% had positive attitude score.

Conclusion: - More than half of participants demonstrated good awareness about obesity. Moreover, 86% of the students exhibited a highly positive attitude towards reducing obesity.

Running title: Knowledge and Attitude of Colleges Students regarding Obesity.

Introduction:

Obesity characterized by having an excess amount of body fat compared to what is considering optimal. This increase in body fat results from an energy imbalance between calorie intake and expenditure and is influenced by a complex interplay of genetic, environmental, and behavioral factors, with food being a key component of these factors[1]. Consequently, to understand the growing obesity epidemic, researchers are increasingly interested in studying food habits [2]. Additionally, several studies have established a relationship between Body Mass Index (BMI) and various epidemiological factors, such as lifestyle choices. For example, there is a direct relationship between BMI and sedentary work, alcohol consumption, physical exercise, and educational level [3]. A BMI of 26 or higher has been identified as a major risk factor for diabetes, while a BMI of 30 or higher is strongly associated with arthritis and hypertension[4].

Obesity was recognized as a risk factor for various chronic diseases, particularly those closely linked to diabetes, cardiovascular diseases, osteoporosis, and certain types of cancer-

ailments that contribute significantly to morbidity and mortality rates in Europe and other highly developed regions. Obesity is not only considered a disease on its own but also exacerbates and promotes the development of many other conditions [5]. Common complications of abdominal obesity include hyperinsulinemia, hyperglycemia, impaired glucose tolerance, and elevated plasma triglycerides [6]. Each year, over 2.8 million people die due to excessive weight gain, which has reached epidemic levels worldwide. In 2016, approximately 650 million adults were classified as obese globally, while over 1.9 billion individuals were considered overweight [7].

Undergraduate students as a part of the community and the proportion of their knowledge, attitude and practice regarding obesity may be will lead to positive reflects on the community (at least for their family). Therefore, this study was conducted to assess the knowledge and attitude about obesity for college students in Karbala Provence.

Methodology: -

Study design and sample size:

A descriptive cross-sectional study was conducting between November 1, 2023, and March 29, 2024. The survey, using a pre-validated questionnaire, involved direct interviews with participants and achieved a 96% response rate. A simple random sampling method employed to select 444 undergraduate students from Karbala Province to be involved in this study.

Study variables: Knowledge and attitude level were the outcome variables of interest. While, Sociodemographic characteristics of the participants considered as independent variables.

Ethical consideration: The ethical accreditation attained from the Research Ethics Committee Directorate of the Technical Institute of Karbala and all the required permissions obtained from the Ministry of Higher Education and Scientific Research**.**

Study instruments: The interview based on a well-structured questionnaire form, that pre-tested on a pilot study with subsequently updated by the literature review to ensure provide reliable information according to WHO criteria after presenting to experts, the questionnaire consisting of two parts: first part contain some demographics characteristic and the second consist of the knowledge and attitude domain.

Statistical analysis: Data were analyzed by SPSS software version 25, data were displayed as percent (%) and number (N), and Chi-Sq. tests were applied for the statistical analysis to examine the relationship between demographic characteristic and participants' Knowledge and attitude. P-values ≤0.05 considered statistically significant. The results of the unfinished questionnaires were excluded.

Results: -

Out of 444 participants involved in this study, there was 284 (64%) female and 160 (36%) were male. According to age groups, 59.9 % of participants were in age groups ≤ 20 years. On the other hand, 64% live in urban areas. Regarding marital status, 97.3% were single (Table 1) .

Table (1) Sociodemographic characteristics.

Variable		No.	%
Gender	**Female**	284	64
	Male	160	36
Age Group	**≤ 20 years**	266	59.9
	≥ 21 years	178	40.1
Residence	**Rural**	151	34
	Urban	293	66
Marital status	**Single**	432	97.3
	Married	12	2.7
Total		444	100

Table 2 illustrate the general information about obesity, 71.8% mentioned hearing about obesity. Meanwhile, 57.7% of participants confirmed that it is means excessive accumulation of fats. 40.8%

"aware the obesity score could be measured by Body Mass Index" and 36.5% believe that obesity was increase BMI above 30.

Table 2. General information about obesity.

Variables		Total : 444	
		No.	%
Ever heard about obesity	Yes	319	71.8
	No	68	15.3
	I don't know	57	12.8
Obesity mean	Excessive accumulation of fat	256	57.7
	The heavy weight of the body	188	42.3
Obesity scales can be estimated by	Assessment of lipids in the body	168	37.8
	Waist circumference	95	21.4
	BMI	181	40.8
Is there a difference between overweight and obesity	Yes	203	45.7
	No	144	32.4
	I don't know	97	21.8
Increase body mass index above 30	Yes	162	36.5
	No	166	37.4
	I don't know	116	26.1

When the participants were questioned regarding the most predisposing factors that lead to obesity, the vast majority of participants aware that "eating lots of carbohydrates"(70.3%), " lot of soft drinks drinking" 85.6% "and eating fast food" 80.6% (Table 3).

Table 3. Factors leading to Obesity.

Variables		Total : 444	
		No.	%
Eating lots of fruits and vegetables	Yes	187	42.1
	No	210	47.3
	I don't know	47	10.6
Eating lots of carbohydrates	Yes	312	70.3
	No	50	11.3
	I don't know	82	18.5
Drinking a lot of soft drinks	Yes	380	85.6
	No	20	4.5
	I don't know	44	9.9
Drinking a lot of water	Yes	114	25.7
	No	267	60.1
	I don't know	63	14.2
Drinking fresh juices	Yes	173	39.0
	No	244	55.0
	I don't know	27	6.1
Eating fast food	Yes	358	80.6
	No	15	3.4
	I don't know	71	16.0

Table 4. Show the participants awareness about the obesity complications, more than 50% aware that obesity caused joint problem, diabetes mellitus, hypertension, shortness of breath, chronic kidney disease, Irritable bowel syndrome, Osteoarthritis and Biliary stone. On other hand, 44.4% for breast cancer and 41.9% for atherosclerosis.

Table 4. Complications of Obesity

Variables		Total : 444	
		No.	%
Joint pain	Yes	298	67.1
	No	57	12.8
	I don't know	89	20
Atherosclerosis	Yes	186	41.9
	No	65	14.6
	I don't know	193	43.5
Diabetes mellitus	Yes	367	82.7
	No	23	5.2
	I don't know	54	12.2
Hypertension	Yes	375	84.5
	No	11	2.5
	I don't know	58	13.1
Breast cancer	Yes	197	44.4
	No	152	34.2
	I don't know	95	21.4
Shortness of breath	Yes	274	61.7
	No	155	34.9
	I don't know	15	3.4
Chronic kidney disease	Yes	238	53.6
	No	159	35.8
	I don't know	47	10.6
Irritable bowel syndrome	Yes	277	62.4
	No	51	11.5
	I don't know	116	26.1
Osteoarthritis	Yes	244	55
	No	178	40.1
	I don't know	66	14.9
Biliary stone	Yes	314	70.7
	No	45	10.1
	I don't know	85	19.1

Figures (1) illustrate the colleges' students towards obesity. As overall assessment, this figure shows that 54% from the study sample had adequate knowledge level.

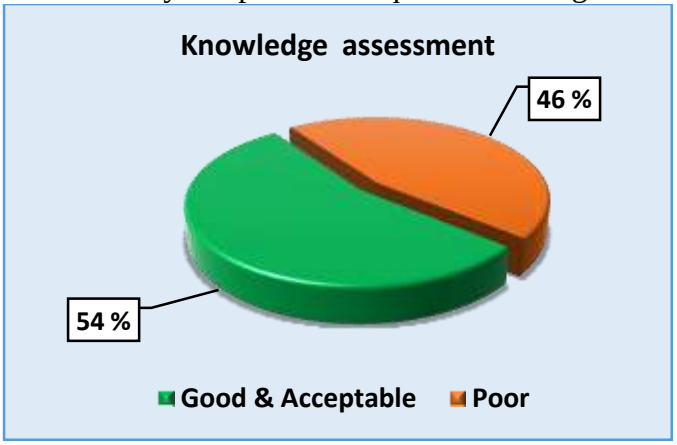

Figure 1. Knowledge Level toward obesity.

A five Likert scale was used to evaluate the participants' attitudes. Only a few participants demonstrated a negative attitude toward obesity, which contrasted sharply with the responses regarding knowledge. (Table 5).

Table 5. General Attitudes toward Obesity

Variables		Total : 444	
		No.	%
Overweight is a good sign of nutrition and health.	Strongly agree.	10	2.3
	Agree.	43	9.7
	Neutral.	156	35.1
	Disagree	105	23.6
	Strongly disagree	130	29.3
Obese individuals are more intelligent	Strongly agree	13	2.9
	Agree	22	5.0
	Neutral	78	17.6
	Disagree	166	37.4
	Strongly disagree	165	37.2
Obese considered as a social stigma	Strongly agree	96	21.6
	Agree	139	31.3
	Neutral	144	32.4
	Disagree	51	11.5
	Strongly disagree	14	3.2
Obesity is a manifestation of beauty	Strongly agree	54	12.2
	Agree	58	13.1
	Neutral	111	25.0
	Disagree	154	34.7
	Strongly disagree	67	15.1
You're content with your present body weight.	Very comfortable	118	26.6
	Somewhat satisfied	196	44.1
	Indifferent	63	14.2
	Dissatisfied	53	11.9
	Strongly dissatisfied	14	3.2
It's crucial for you to lose weight.	Very important	178	40.1
	Somewhat important	133	30.0
	Indifferent	86	19.4
	Unimportant	35	7.9
	Extremely unimportant	12	2.7
Are you concerned in Physical activity (Exercise)	Very concerned	46	10.4
	Somewhat concerned	66	14.9
	Indifferent	95	21.4
	Unconcerned	153	34.5
	Strongly	84	18.9

	Unconcerned

Figure (2) reveal to attitude overall assessment of the study sample, the results shows 86% had positive attitude level .

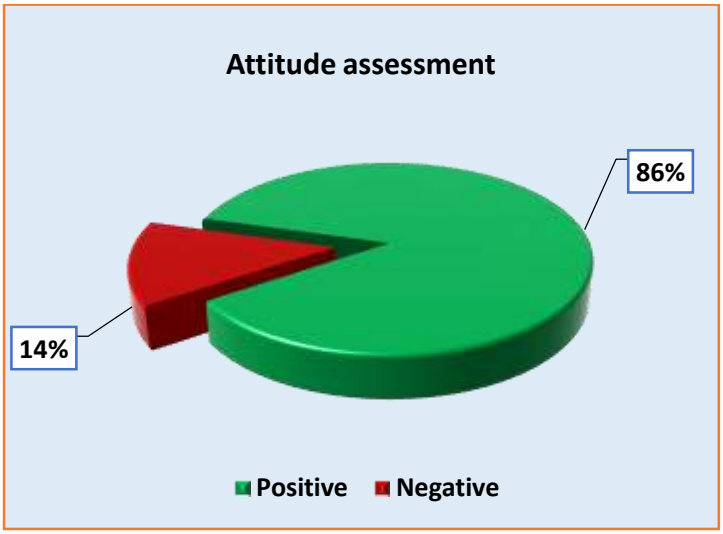

Figure 2. Attitude Level toward obesity.

Table 6. Shows the relationship between knowledge and Attitudes level with some demographic characteristic of study sample, for knowledge domain the study showed highly significant difference (p-value < 0.05) between gender , age groups & marital status. For Attitudes domain there was highly significant difference with gender & age groups with no association with marital status.

Table (6) : The relationship between Knowledge and Attitudes level with some demographic characteristic.

Variables		Knowledge Level		P-value	Attitudes Level		P-value
		Adequate	Inadequate		Positive	Negative	
Gender	**Female**	81	203	**0.001**	278	6	**0.001**
	Male	155	5		98	62	
Age Group	**18-20**	203	63	**0.001**	204	62	**0.001**
	21-23	38	140		171	7	
Marital status	**Married**	9	3	**0.001**	10	2	**0.1**
	Single	229	203		370	62	

Discussion: -

Recently, World Health Organization (WHO) estimated that there are more than 300 million obese individuals in the world [8]. Meanwhile, its presents a challenge to public health and requires medical intervention, modifications of individual behavior, and environmental changes [9], it is considered a major risk factor for non-communicable diseases such as: cardiovascular disease, type 2 diabetes, physical disabilities and psychosocial conditions [10].

WHO describe an escalating global epidemic of overweight and obesity “globosity” that is taking over many parts of world “if immediate action is not take, million will suffer from a serious health disorder [11].

Health education is a crucial preventive measure to curb the spread of obesity in communities, especially when health awareness promoted among young people. Consequently, a descriptive cross-sectional study was conducted on a sample of undergraduate students to assess their knowledge and attitudes toward obesity.

As presented in Table 1, 284 (64%) were female and 160 (36%) were male. Additionally, 266 (59.9%) were aged between 18 and 20 years, and 293 (66%) lived in urban areas. Regarding marital status, 97.3% were single. Our study's findings align with a recent study conducted among Chinese university students in 2021, where 64.6% of the participants were female, and the age range was 16 to 24 years [12].

Regarding the general information about obesity in Table 2, 71.8% of the study sample had heard about obesity. Additionally, 57.7% accurately identified it as "an excessive accumulation of fats in the body," 40.8% believed that obesity could be measured by Body Mass Index, and 36.5% thought that obesity was defined by a BMI above 30. These results are consistent with findings among medical students in Faisalabad, Pakistan, 2020 [13]. In table 3, 70.3% of participants aware of that the risk factors for obesity were "eating lots of carbohydrates", 85.6% "drinking a lot of soft drinks" and 80.6% was eating fast food, that is a good indicator of participants' awareness of the risk factors that lead to insulin resistance and then leading to obesity. Interestingly, extra than half of the contributors understood that obesity might result in joint pain, diabetes mellitus, hypertension, shortness of breath, chronic renal disease, irritable bowel syndrome, osteoarthritis, and biliary stones when we questioned them about the consequences of obesity. On the other hand, 41.9% for atherosclerosis and 44.4% for breast cancer. As shown in Table 4.

Overall, figure 1, the results indicated that undergraduates students have fairly good knowledge about obesity 54%. Most respondents had an unclear understanding of BMI, which may be related to a universal lack of expertise in general medicine. Generally, however, the concept of obesity was unfamiliar to most interviewees.

In this study, students demonstrated a strong understanding of the causes and negative effects of obesity, consistent with findings from research involving Malaysian and Indian medical students [14&15]. However, there is a need to enhance students' knowledge about the criteria for diagnosing obesity, as nearly half of the participants were unfamiliar with the condition, and two-thirds were unaware that obesity is defined as a body mass index above 30, which is quite surprising.

In Table 6, a five-point Likert scale was employed to assess the participants' attitudes, and the responses in this section were deemed satisfactory. Nearly all students (86%), as shown in Figure 2, displayed a positive attitude, with only a small number exhibiting a negative view toward obesity. This was in stark contrast to the knowledge responses, which were more favorable compared to a similar survey conducted in Hungary [16].

Conclusions:- In general, 54% of the study sample had adequate knowledge with highly significant differences between gender, age groups & marital status and 86% had a positive attitude with a strong relationship with gender and age groups.

Recommendation: - Even though 54% of college students have sufficient knowledge and 86% hold a positive attitude towards obesity, it's important to enhance education on the subject to help students incorporate this knowledge into their daily habits and practices. Additionally, efforts should be made to close the gap between knowledge and application by offering lectures and providing access to healthy food options and sports facilities on campus.

Declarations:

- Declaration of conflicting interests: The Authors declares that there is no conflict of interest.

- Ethical Approval and Consent to participate: The Research Ethics Committee of the Technical Institute of Karbala granted and all necessary clearances and ethical approvals

- Authors' contributions:

Ali abd al -latif .G, contributed to the completion of the practical part as well as the discussion section. **Maytham Salim AL-Nasrawii** contributed by writing the introduction section and writing a discussion of the research and the abstract. **Mohammad Abdul Baqi Abdul Mohsin** contributed to the completion of the statistical analysis of the data as well as writing the research methods and References.

- Acknowledgements: The authors express their thanks and appreciation to the Scientific Research Council at the Technical Institute of Karbala for their continued support in the completion of this scientific research.

Reference: -

1. Dehghan M, Akhtar-Danesh N, Merchant AT. Childhood obesity, prevalence and prevention. Nutrition journal. 2005 Dec;4(1):1-8.
2. Togo P, Osler M, Sørensen TI, Heitmann BL. Food intake patterns and body mass index in observational studies. International journal of obesity. 2001 Dec;25(12):1741-51.
3. Ishizaki M, Morikawa Y, Nakagawa H, Honda R, Kawakami N, Haratani T, Kobayashi F, Araki S, Yamada Y. The influence of work characteristics on body mass index and waist to hip ratio in Japanese employees. Industrial health. 2004;42(1):41-9.
4. Swami HM, Bhatia V, Gupta AK, Bhatia SP. An epidemiological study of obesity among elderly in Chandigarh. Indian Journal of Community Medicine. 2005 Jan 1;30(1):11.
5. Koh-Banerjee, P., Chu, N.F., Spiegelman, D., Rosner, B., Colditz, G., Willett, W. and Rimm, E., 2003. Prospective study of the association of changes in dietary intake, physical activity, alcohol consumption, and smoking with 9-y gain in waist circumference among 16 587 US men. The American journal of clinical nutrition, 78(4), pp.719-727.
6. Tan CE, Ma S, Wai D, Chew SK, Tai ES. Can we apply the National Cholesterol Education Program Adult Treatment Panel definition of the metabolic syndrome to Asians?. Diabetes care. 2004 May 1;27(5):1182-6.
7. Alhawiti RM. Knowledge, attitude, and practice about obesity among adults (18-45 years) in primary health care in Medina, KSA 2019. Age. 2021;18(28):101.
8. Al-Jeheidli AH, Moquddan FI, Al-Rumh MK, Salmin NN. General Practitioners Attitudes and Practices toward Managing Obesity. Kuwait Medical Journal. 2007;39(2):138.
9. Bocquier A, Verger P, Basdevant A, Andreotti G, Baretge J, Villani P, Paraponaris A. Overweight and obesity: knowledge, attitudes, and practices of general practitioners in France. Obesity research. 2005 Apr;13(4):787-95.
10. WHO Consultation on Obesity (1999: Geneva, Switzerland) & World Health Organization. (2000). Obesity : preventing and managing the global epidemic : report of a WHO consultation. World Health Organization. https://apps.who.int/iris/handle/10665/42330.
11. WHO. (9 June 2021). Obesity and overweight: report of World Health Organization. https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight.
12. Xue B, Zhang X, Li T, Gu Y, Wang R, Chen W, Ren X, Liu X, Chen G, Lin Y, Pan C. Knowledge, attitude, and practice of obesity among university students. Ann Palliat Med. 2021 Apr 1;10:4539-46.
13. Shahid R, Naeem A, Riaz MM, Ehsan SB. Knowledge, Attitude and Practices Regarding Obesity Among Medical Students in Faisalabad, Pakistan. Annals of Punjab Medical College (APMC). 2020 Jul 2;14(1):50-3.
14. Sivashunmugam L, Ansari RM. Prevalence of obesity and overweight among second year students in a Malaysian medical university and their knowledge and perception of obesity. MAMC Journal of Medical Sciences. 2017 Sep 1;3(3):140.
15. Deotale MK, Ranganathan U, Akarte SV. Prevalence of overweight and obesity among medical students and their knowledge, attitude and practices about obesity. Int J Sci Rep. 2015 May 1;1(1):74-9.
16. Rurik I, Torzsa P, Ilyés I, Szigethy E, Halmy E, Iski G, Kolozsvári LR, Mester L, Móczár C, Rinfel J, Nagy L. Primary care obesity management in Hungary: evaluation of the knowledge, practice and attitudes of family physicians. BMC Family Practice. 2013 Dec;14:1-8.