Obesity Knowledge, Practice, and Attitudes among Jordanian University Students

Mohammad Nebih Nofal*

mnn_nofal@yahoo.com

Al-hareth Ahmad Mistarihi

Ahmad Mohammad Daradkah

Dania Jafar Altarawneh

Rogayah Mahmoud Alkhanazreh

Leena Mohammed Mahmoud

Khaled Waleed Alamrat

Amro Azmi Odeh

Khalil Mahmoud Alsalem

Abstract

Objectives: The aim of this study was to compare the level of obesity knowledge among Jordanian medical and non-medical students across academic years and colleges, and to compare it with similar studies. The secondary aim was to attitudes toward healthy behaviors and their perceived competence in managing obesity-related issues.

Methods: This cross-sectional KAP study involved medical and non-medical students from 15 different colleges, conducted from January 2023 to April 2023. Participants were contacted electronically via a specifically designed questionnaire after obtaining IRB approval.

Results: A total of 507 questionnaires were distributed, with 503 completed responses 99.2% response rate). Females and medical students responded significantly more positively on most knowledge, attitude, and practice items ($P < 0.05$). Females were more likely than males regarding food selection (29% vs. 10%), weight and body shape concerns (61% vs. 10%), and overweight solutions (59% vs. 20%). Medical students identified that the weight scale is not the only tool to identify obesity than non-medical students (88% vs. 80%), more aware of BMI (94% vs. 59%), and bariatric surgeries availability (96% vs. 91%).

Conclusion: Females and medical students demonstrated more positive knowledge and attitudes toward obesity issues attitudes compared to other college students.

Keywords: obesity; knowledge; attitude; practice

* Corresponding author Associate Professor of General Surgery Department of General Surgery and Anesthesia Mutah University Karak – Jordan.

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المعرفة والممارسة والمواقف المتعلقة بالسمنة بين طلاب الجامعات الأردنية

محمد نبيه نوفل*

الحارث محمد المستريحي

أحمد محمد درادكة

دانية جعفر الطراونة

رقية محمود الخنازرة

لينا محمد محمود

خالد وليد العمرات

عمرو عزمي عودة

خليل محمود السالم

ملخص

أهداف البحث: هدفت هذه الدراسة إلى مقارنة مستوى معرفة طلاب الطب الأردنيين وطلبة الكليات الأخرى بالسمنة حسب السنوات الدراسية والكليات المختلفة، ومقارنتها بدراسات مماثلة. أما الهدف الثانوى للدراسة فكان دراسة مواقفهم تجاه السلوكيات الصحية ومدى كفاءتهم فى معالجة المشكلات المتعلقة بالسمنة.

طرق البحث: شملت هذه الدراسة المقطعية للمعرفة والمواقف والممارسات (KAP) طلابًا من مختلف التخصصات الطبية وغير الطبية من 15 كلية مختلفة، وأُجريت فى الفترة من كانون الثانى 2023 إلى نيسان 2023. وتم الاتصال بالمشاركين إلكترونيًا من خلال استبيان مصمم خصيصًا بعد الحصول على موافقة لجنة اخلاقيات البحث العلمى.

النتائج: تم توزيع 507 استبيانات، تم إكمال 503 منها، بنسبة استجابة 99.2%. استجابت الإناث وطلاب الطب بشكل إيجابى أكثر بكثير من الذكورو طلاب الكليات الاخرى لمعظم بنود المعرفة والمواقف والممارسة (قيمة الاحتمال < 0.05). كانت الإناث أكثر اهتمامًا من الذكور باختيار الطعام (29% مقابل 10%)، ومخاوف الوزن وشكل الجسم (61% مقابل 10%)، وحلول زيادة الوزن (59% مقابل 20%). أشار طلاب الطب إلى أن مقياس الوزن ليس الأداة الوحيدة لتحديد السمنة مقارنةً بطلاب الطب غير الطبيين (88% مقابل 80%)، وأنهم أكثر وعيًا بمؤشر كتلة الجسم (94% مقابل 59%)، وتوافر جراحات السمنة (96% مقابل 91%).

النتيجة: أظهرت الإناث وطلاب الطب معرفة ومواقف أكثر إيجابية تجاه قضايا السمنة مقارنة بطلاب الكلياتت الأخرى.

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Introduction:

Obesity is defined by the World Health Organization (WHO) as "abnormal or excessive fat accumulation that may impair health." "The fundamental cause of obesity and overweight is an energy imbalance between calories consumed and calories expended. In practical terms, obesity is a body mass index (BMI) of 30 or higher (body mass in kilograms divided by height in meters squared, kg/m^2). While other methods such as waist circumference (WC) and measurements of central and peripheral fat mass are also used to define obesity, BMI remains the most widely adopted metric.

Obesity is a global epidemic and a major health concern that affects all age groups, including children, teenagers, adults, and the elderly. Over the last few decades, the number of people with excess body weight has surpassed two billion, accounting for 30% of the global population. This trend reflects the unrelenting rise of overweight and obesity worldwide.

Although genetic influences contribute to obesity, most researchers agree it is primarily an acquired condition, heavily influenced by social, environmental, and lifestyle factors, such as low physical activity levels and prolonged overeating. Obesity is associated with a variety of comorbidities, affecting nearly every organ system , including insulin resistance (IIR) type 2 diabetes mellitus (T2DM), cardiovascular disease, pulmonary disease, sleep disturbances, and psychological issues , leading ultimately to reduced life expectancy.

This cross-sectional study aimed to assess the knowledge, attitudes, and practices (KAP) regarding obesity among university students in Jordan and to compare the findings with previous studies. In previous published literature, researchers noted low level of professional knowledge about obesity among medical students, interns, and physicians associated with inadequate efficient obesity behavior. The primary goal of this study was to compare obesity knowledge between medical and non-medical students across different academic years and colleges. The secondary objective was to evaluate students' attitudes toward healthy behaviors and their perceived competence in managing obesity-related issues.

Materials and Methods:

This cross-sectional observational study was conducted from January 2023 to April 2023. It assessed and compared students' knowledge, attitudes, and practices concerning obesity across various Jordanian universities. Students from different faculties were invited to participate anonymously and voluntarily.

A 31-item self-administered questionnaire was developed (Table 1), including five questions on demographic information (age, gender, college, university, and academic year). The questionnaire was then divided into three sections: 11 questions on obesity knowledge, 7 on attitudes, and 8 on practices.

Table (1) Study Questionnaire used in the research

Knowledge				
No.	**Item**	**Yes**	**No**	**Do not know**
1.	Do you think obesity is a disease?			
2.	Obesity measurement is on the scale only			
3.	Have you heard of BMI?			
4.	Obesity may cause heart disease			
5.	Obesity may cause diabetes			
6.	Obesity may cause joint disease			
7.	Obesity may cause sleep disturbances			
8.	Obesity can cause depression			
9.	Obesity affects only adults			
10.	Is there a medical treatment for obesity?			
11.	Are there surgeries to treat obesity?			
Attitude				
1.	Are you the type of person who chooses his food carefully and does not settle for any kind of food?			
2.	Do you care about your body shape in terms of weight?			

Knowledge				
3.	Is your weight normal?			
4.	Are you looking for solutions if you gain weight?			
5.	Do you think losing weight is difficult?			
6.	I do not have time to think about weight because I am busy studying.			
No.	**Item**	**Yes**	**No**	**Do not know**
Practice				
1.	Do you have breakfast daily?			
2.	Do you eat sweets daily?			
3.	Do you eat fried food weekly?			
4.	Do you take dairy products weekly?			
5.	Do you spend a lot of your personal expenses on eating out in restaurants?			
6.	Do you exercise regularly?			
7.	Do you choose food based on its nutritional value?			
8.	Do you resort to eating a lot of food when you are in a bad mood?			

As no standard questionnaire was available, one was specifically created for this study, drawing from a thorough review of similar surveys. Some items were adapted from existing questionnaires or surveys targeting students (see Table 1). Participants were approached electronically after receiving full permission. The sample consisted of 507 consenting university and college students. Those who declined participation or did not complete the questionnaire were excluded. Limitations of sampling included homogeneity issues and sample size distribution. The survey was distributed following IRB approval (Approval No 942023.).

Statistical analysis was performed using IBM SPSS Inc. Statistics version 22 (Armonk, NY, USA). A significance level of $P < 0.05$ was used throughout.

Results:

A total of 507 questionnaires were distributed, with 503 completed responses received, resulting in a response rate of 99.2%. Participants represented 15 different colleges across 19 Jordanian academic institutions. The demographic breakdown of participants is presented in Table(2).

Table (2) Demographics and percentages of various elements in the study

Gender	N	Percent
Male	148	29.4
Female	355	70.6
Total	503	100.0
Minimum age	16	
Maximum age	27	
Mean age	21.17	
Faculty	N	Percent
Medicine	266	52.9
Sharia	3	0.6
Sciences	40	8.0
Educational Sciences	3	0.6
Nursing	18	3.6
Law	11	2.2
Engineering	14	2.8
Foreign Languages	4	0.8
Pharmacy	82	16.3
Business	6	1.2
Arts	12	2.4
Dentistry	20	4.0
Commerce	1	0.2
Arts and Design	9	1.8
Mass Communication	14	2.8
Total	503	100.0
Academic Institution	N	Percent
Mutah University	230	45.7
The University of Jordan	41	8.2
Tafila Technical University	1	0.2
Yarmouk University	56	11.1

Balqa Applied University	53	10.5
Al Albayt University	5	1.0
Al-Zaytoonah University of Jordan	35	7.0
Jordan University of Science and Technology	31	6.2
The Hashemite University	19	3.8
Rafidah College of Nursing and Midwifery and Allied Health	1	0.2
Al-Ahliyya Amman University	1	0.2
The World Islamic Sciences and Education University	2	0.4
Jerash University	1	0.2
Amman Training College	15	3.0
Faculty of Educational Sciences and Arts	7	1.4
University of Petra	1	0.2
Al-Hussein Bin Talal University	2	0.4
Wadi Seer College	1	0.2
German Jordanian University	1	0.2
Total	503	100.0

Mutah University had the highest participation rate (45.7%), and medical colleges had the largest representation (52.9%), likely due to the researchers' ease of access to these groups. Female participants outnumbered males (70.6% vs. 29.4%), and the median participant age was 21.17 years.

In terms of obesity knowledge by gender, most males (19.7%) and females (34.6%) reported receiving their information about obesity from doctors and healthcare workers, while 1.4% of males and 7.7% of females cited friends and family as their sources. Additionally, 4.4% of males and 14% of females reported getting information from the internet, and only 0.34% of males and 3% of females relied on television. The remaining participants mentioned other sources. When asked if obesity affects only

adults, most males and females (28.4% and 69.9%, respectively) answered "no," with one female answering, "I don't know" and a small number (5 males and 2 females) answering "yes." This result was statistically significant, with a Chi-squared value of 6.433 and a P-value < 0.05.

Regarding lifestyle and dietary habits, several gender-based differences were observed. For example, females were more likely than males to carefully select their food (29% vs. 10%), to care about their weight and body shape (61% vs. 10%), to consider their weight healthy (55% vs. 19%), and to look for solutions if they gained weight (59% vs. 20%). Females were also more likely to agree that proper weight and appearance usually accompany good health (58% vs. 28%), to consume dairy products (49% vs. 24%), to spend on food from restaurants (27% vs. 15%), and to choose food based on nutritional value (13% vs. 7.5%). These differences were statistically significant (P < 0.05), with females demonstrating more positive responses. Conversely, males showed a more positive attitude toward regular physical exercise (9.1% vs. 7.6%, P < 0.05). The remaining items did not show significant relationships with obesity awareness (Table 3).

Table (3) Results of knowledge, attitude, and practice towards obesity among male and female students

Item	Response	Gender		χ^2	df	P value
		Male	Female			
Do you think obesity is a disease?	Yes	131	321	4.139	2	0.126
	No	14	19			
	I do not know	3	15			
Obesity measurement is on the scale only	Yes	9	28	2.804	2	0.246
	No	131	294			
	I do not know	8	33			
Have you heard of BMI?	Yes	125	264	7.280	2	0.026
	No	21	73			
	I do not know	2	18			
Obesity may cause heart disease	Yes	145	352	2.041	2	0.360
	No	1	2			
	I do not know	2	1			

Obesity may cause diabetes	No	141	346	2.567	2	0.277
	No	2	1			
	I do not know	5	8			
Obesity may cause joint disease	Yes	143	330	2.691	2	0.260
	No	2	7			
	I do not know	3	18			
Obesity may cause sleep disturbances	Yes	127	306	.115	2	0.944
	No	4	11			
	I do not know	17	38			
Obesity can cause depression	Yes	133	338	5.048	2	0.080
	No	4	5			
	I do not know	11	12			
Obesity affects only adults	Yes	5	2	6.433	2	0.040
	No	143	352			
	I do not know	0	1			
Is there a medical treatment for obesity?	Yes	80	176	4.599	2	0.100
	No	30	55			
	I do not know	38	124			
Are there surgeries to treat obesity?	Yes	141	330	.948	2	0.623
	No	1	4			
	I do not know	6	21			
Your information source about obesity	Relatives and friends	7	39	15.582	4	0.004
	Physicians and health care workers	99	174			
	Internet	22	70			
	TV programs	2	15			
	Others	18	57			
Are you the type of person who chooses his food carefully and does not settle for any kind of food?	Yes	53	144	8.958	2	0.011
	No	93	186			

	I do not know	2	25			
Do you care about your body shape in terms of weight?	Yes	103	305	19.429	2	0.000
	No	38	38			
	I do not know	7	12			
Is your weight normal?	Yes	98	277	12.329	2	0.002
	No	48	66			
	I do not know	2	12			
Are you looking for solutions if you gain weight?	Yes	103	295	11.539	2	0.003
	No	38	51			
	I do not know	7	9			
Do you think losing weight is difficult?	Yes	67	176	.882	2	0.643
	No	76	166			
	I do not know	5	13			
I do not have time to think about weight because I'm busy studying.	Yes	58	123	3.265	2	0.195
	No	87	213			
	I do not know	3	19			
Proper weight and good external shape usually accompany good health.	Yes	139	292	11.825	2	0.003
	No	7	42			
	I do not know	2	21			
Do you have breakfast daily?	Yes	66	139	1.465	2	0.481
	No	63	171			
	No answer	19	45			
Do you eat sweets daily?	Yes	46	114	.614	2	0.735
	No	86	195			
	No answer	16	46			
Do you eat fried food weekly?	Yes	114	251	2.403	2	0.301

	No	19	64			
	No answer	15	40			
Do you take dairy products weekly?	Yes	119	245	6.978	2	0.031
	No	20	81			
	Neutral	9	29			
Do you spend a lot of your personal expenses on eating out in restaurants?	Yes	78	136	10.377	2	0.006
	No	60	172			
	No answer	10	47			
Do you exercise regularly?	Yes	46	38	32.053	2	0.000
	No	92	274			
	No answer	10	43			
Do you choose food based on its nutritional value?	Yes	38	67	6.597	2	0.037
	No	98	233			
	No answer	12	55			
Do you resort to eating a lot of food when you are in a bad mood?	Yes	67	148	.934	2	0.627
	No	61	163			
	No answer	20	44			

When comparing medical students to other students, the results showed distinct differences in responses. For example, medical students were significantly more likely than non-medical students to correctly identify that the weight scale is not the only tool available to detect obesity (88% vs. 80%), to be aware of BMI (94% vs. 59%), to recognize that obesity can cause sleep problems (91% vs. 81%), and to know that obesity surgeries are available (96% vs. 91%). Medical students also reported having time to consider their weight while studying (41% vs. 30%). These responses were significantly more positive among medical students ($P < 0.05$), with doctors and healthcare workers being their primary sources of information ($P < 0.05$).

Table (4) shows that the remaining survey items had no significant relationship with obesity awareness among medical and non-medical students

Items	Response	College		χ^2	df	P-value
		Medical	Others			
Do you think obesity is a disease?	Yes	241	211	0.817	2	0.665
	No	15	18			
	I do not know	10	8			
Obesity measurement is on the scale only	Yes	16	21	6.742	2	0.034
	No	235	190			
	I do not know	15	26			
Have you heard of BMI?	Yes	249	140	85.294	2	0.000
	No	14	80			
	I do not know	3	17			
Obesity may cause heart disease	Yes	265	232	3.865	2	0.145
	No	1	2			
	I do not know	0	3			
Obesity may cause diabetes	Yes	258	229	0.467	2	0.792
	No	2	1			
	I do not know	6	7			
Obesity	Yes	254	219	3.374	2	0.185

may cause joint disease						
	No	5	4			
	I do not know	7	14			
Obesity may cause sleep disturbances	Yes	242	191	11.294	2	0.004
	No	5	10			
	I do not know	19	36			
Obesity can cause depression	Yes	255	216	5.440	2	0.066
	No	2	7			
	I do not know	9	14			
Obesity affects only adults	Yes	3	4	1.417	2	0.492
	No	263	232			
	I do not know	0	1			
Is there a medical treatment for obesity?	Yes	142	114	1.526	2	0.466
	No	44	41			
	I do not know	80	82			
Are there surgeries to treat obesity?	Yes	255	216	7.508	2	0.023
	No	0	5			
	I do not know	11	16			

Your information source about obesity	Relatives and friends	13	33	64.577	4	0.000
	Doctors and health workers	188	85			
	Internet	38	54			
	TV programs	5	12			
	Others	22	53			
Are you the type of person who chooses his food carefully and does not settle for any kind of food?	Yes	103	94	4.769	2	0.092
	No	154	125			
	I do not know	9	18			
Do you care about your body shape in terms of weight?	Yes	212	196	2.807	2	0.246
	No	46	30			
	I do not know	8	11			
Is your	Yes	199	176	.588	2	0.745

weight normal?						
	No	61	53			
	I do not know	6	8			
Are you looking for solutions if you gain weight?	Yes	204	194	2.083	2	0.353
	No	53	36			
	I do not know	9	7			
Do you think losing weight is difficult?	Yes	131	112	0.301	2	0.860
	No	125	117			
	I do not know	10	8			
I do not have time to think about weight because I am busy studying	Yes	110	71	7.604	2	0.022
	No	147	153			
	I do not know	9	13			

Proper weight and good external shape usually accompany good health	Yes	230	201	1.883	2	0.390
	No	27	22			
	I do not know	9	14			
Do you have breakfast daily?	Yes	116	89	2.729	2	0.255
	No	121	113			
	No answer	29	35			
Do you eat sweets daily?	Yes	82	78	0.490	2	0.783
	No	149	132			
	No answer	35	27			
Do you eat fried food weekly?	Yes	199	166	1.443	2	0.486
	No	40	43			
	No answer	27	28			
Do you take dairy products weekly?	Yes	204	160	5.894	2	0.052
	No	43	58			
	No answer	19	19			

Do you spend a lot of your personal expenses on eating out in restaurants?	Yes	122	92	3.138	2	0.208
	No	113	119			
	No answer	31	26			
Do you exercise regularly?	Yes	54	30	5.950	2	0.051
	No	188	178			
	No answer	24	29			
Do you choose food based on its nutritional value?	Yes	64	41	3.468	2	0.177
	No	168	163			
	No answer	34	33			
Do you resort to eating a lot of food when you are in a bad mood?	Yes	119	96	0.926	2	0.630
	No	114	110			
	No answer	33	31			

Discussion:

Obesity has become a global epidemic with well-established causes and comorbidities, making it critical to assess the knowledge, practices, and attitudes of university students—particularly medical students—regarding obesity-related issues.

The rising incidence of obesity is linked to several factors, including increased intake of high-calorie foods, reduced physical activity in many occupations, lower resting metabolic rates, irregular eating habits, and psychological stress. Effective management and prevention of obesity depend heavily on awareness of the disease and its associated risk factors. Health care professionals play a crucial role in educating patients about obesity risks and providing the guidance needed to maintain a healthy body weight. In this study, most medical students reported receiving their obesity-related information from doctors and other health care professionals. However, multiple studies indicate that medical students, interns, and even practicing physicians often lack self-proficiency in this area.

In the study by Shahid et al., students demonstrated a thorough understanding of obesity's causes and consequences, though approximately one-third were unfamiliar with obesity identification methods, and some unhealthy habits were noted—results similar to those observed in our study's "practice" responses[17]. A study of general practitioners in France found that while 79% acknowledged that addressing obesity was part of their job, 58% did not feel they were effective in this role, and one-third did not find it professionally rewarding. Physicians who had participated in continuing medical education (CME) courses on obesity and weight management guidelines reported feeling more effective, likely due to the confidence and optimism these courses provided.

According to Rurik et al., only 51% of general practitioners in Hungary were aware of the diagnostic threshold for obesity. Similarly, a study in China found that international students had significantly higher BMI and body fat percentages compared to Chinese students ($P < 0.05$), alongside significantly higher weekly consumption of dairy, fast food, and carbonated drinks ($P < 0.001$). These findings underscore the importance of nutrition

awareness in preventing obesity, which was also evident in our study comparing obesity practices between male and female students.

In Xue et al.'s study on obesity KAP among university students, 64.6% considered obesity a disease, 33.9% reported snacking, 36.8% believed they had a normal body shape, and 44.6% expressed a desire to lose weight for fitness purposes[21]. Similarly, a study conducted in Saudi Arabia found that 60.3% of participants recognized BMI as a measure for obesity, with over three-quarters acknowledging that high intake of carbohydrates, sweets, fast foods, and sugary drinks were risk factors for obesity. Additionally, more than 70% were aware of obesity complications and understood that regular exercise, reducing sugar and carbohydrate intake, and consuming more fruits and vegetables could help manage weight. However, there was a noticeable gap between knowledge and attitude, with few participants displaying a favorable attitude toward obesity management.

In Switzerland, a survey of 834 health care professionals revealed that 31% did not know how to calculate BMI, and 71% believed that highly restrictive diets were ineffective for weight loss. Despite this, nearly all participants (96.8%) recognized that obesity could lead to medical complications [23], a finding comparable to the knowledge level of medical students in the present study. In a study by Smith et al. in the United States, primary care residents from various programs and specialties who completed an elective rotation focusing on obesity, nutrition, and physical activity showed greater self-efficacy, along with more positive attitudes and professional practices[24].

In conclusion, Obesity is a growing epidemic that can be prevented through proper education and consistent healthy practices, which can be effectively introduced during the early university years. In this study, females and medical students demonstrated more positive knowledge and attitudes toward obesity compared to their peers in other fields. However, as indicated in this and previous studies, further efforts are needed to translate positive attitudes into practical, constructive actions.

Integrating obesity education into courses on preventive medicine and health promotion could be a valuable strategy to enhance awareness and support effective obesity management and prevention among future professionals.

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