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Prevalence of Obesity and Overweight among Staff at Technical Institute-Swaira in Middle Technical University

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Abstract

Background: Overweight and obesity defined as "abnormal or excessive fat accumulation that presents a risk to health". Obesity is the fifth among global causes of death. The rise in overweight and obesity among adult workers is a global public health concern. It's associated with a higher risk of type 2 diabetes, hypertension, coronary heart disease, stroke, and cancer, as well as increased healthcare expenditures, reduced job productivity, and lost of money.

Objective: To assess the prevalence of overweight and obesity and to find out relation with some risk factors among staff at Technical Institute-Swaira in Middle Technical University.

Patients and Methods: A descriptive cross-sectional study design carried out in Technical Institute-Swaira in Middle Technical University. Included (150) of staff selected. Sampling Technique to selection staff were random (probability sampling). The data collection by direct interview technique of researcher with each participant of staff from 5th November 2021 to 4th July 2022.

Results: The study show socio-demographic characteristics. Regarding to staff age (31-40) years constituted the majority (38.0%). High percentage of participants were married (84.7%) and lower percentage were divorced (1.3%), BMI in the study population the high percentage were (42.0%) of participants overweight, BMI was highly significantly by practicing exercise (P= 0.000), significant differences in BMI with regular three meals a day and eat fast food (P= 0.01), (P= 0.03).

Conclusion: This study found that a large number of participant were overweight or obese. BMI changes a lot with age. There were big differences in BMI between participant who worked out regularly and participant who ate three meals a day or fast food.

Keywords: Prevalence, Obesity, Overweight, Staff, Institute, University

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Introduction

Overweight and obesity defined as "abnormal or excessive fat accumulation that presents a risk to health". The upsurge of overweight and obesity among adult workforce has become a global public health concern and they are accompanied by a higher risk of type 2 diabetes, hypertension, coronary heart disease and stroke and cancers with substantial healthcare costs and reduced work productivity and losses due to inability

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to work [1]. Obesity in general is defined as the presence of excess adipose tissue in the body with a body mass index (BMI) of >30.0 kg/m^2 to such a degree that it may lead to health hazards [2]. Overweight defined as a BMI range of 25.0kg/m^2 to 29.9kg/m [2, 3].

Obesity and overweight are the fifth greatest cause of death worldwide. Overweight and obesity, once thought to be a developed-country concern, are now on the rise in developing countries, particularly in metropolitan areas. Obesity is on the rise among the elderly worldwide, regardless of socioeconomic background. Obesity is considered by the WHO to be the greatest health threat of the twenty-first century. Governments and health institutions around the world have been caught off guard by the quick growth in prevalence, and the repercussions are clear. According to the World Health Organization, 2.8 million persons die each year as a direct or indirect result of being overweight or obese [4].

Obesity and being overweight are substantial risk factors for a variety of chronic diseases. Previously, these were thought to be issues that only affluent countries faced; however, research reveals that they have increasingly afflicted low- and middle-income countries [5], which are now dealing with the double burden of malnutrition, confronting both undernutrition and over nutrition. Each year, at least 2.8 million people die because of being overweight or obese, according to data from the Global Health Observatory (GHO). Overweight and obesity are responsible for 2.3 percent of worldwide disability-adjusted life years (DALYs), or 35 million persons [6].

According to the World Health Organization's (WHO) most recent global estimates, at least 1.9 billion adults aged 18 and over were overweight in 2016, with 650 million being obese. Obesity affected 13% of the adult population worldwide. Obesity prevalence approximately tripled in 41 years, from 1975 to 2016 [5].

Obesity is fundamentally caused by an energy imbalance between calories consumed and calories expended. Globally, there has been an increased intake of high fat [7]. Adults may be more susceptible to arising complications in dietary habits. Unhealthy eating patterns, such as a high consumption of sugar-sweetened soft drinks, snacks and sweets, and a low intake of fruit and vegetable portions as well as the habit of skipping breakfast, were related to overweight. Overweight and Obesity are associated with high consumption of caloric dense foods particularly fat, sugar or junk foods, physical inactivity and host of other causes [8].

Certain occupations cause people to live sedentary lifestyles, and some of these positions require people to sit for long amounts of time during the day. Because of the nature of their profession, university employees, for example, spend the majority of their time sitting. If these individuals do not intentionally engage in physical activities outside of working hours, they will eventually spend the majority of their working life less engaged in physical exercise. As a result, employees in these environments are more likely to become obese or overweight, putting them at risk for chronic diseases like cardiovascular disease and type 2 diabetes. This could contribute to

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the country's rising obesity and overweight rates, as well as the health consequences [9]. Study aims to assess the prevalence of overweight and obesity and to find out relation with some risk factors among staff.

Patients and Methods

A descriptive cross-sectional study design carried out at Technical Institute-Swaira in Middle Technical University/Iraq. Included (150) of staff selected randomly to study their prevalence of obesity and overweight. Sampling Technique to selection staff were random (probability sampling), every member of a population has the same chance of being included within the sample. The data collection was through the direct interview technique by researcher with each participant of staff lasted from 5th November 2021 to 4th July 2022. The researcher to assess the prevalence of overweight and obesity in staff at at Technical Institute-Swaira in Middle Technical University. Constructed the study instrument (questionnaire). To ensure clarity the questionnaire was pre-tested on staff, the participant staff who took part in the pretest were not included in the study.

Questionnaire format contents socio-demographic characteristics(age, marital status, educational level and residence), also the questionnaire contain lifestyle and some factors (smoking habits, practicing exercise, regular three meals a day, eat fast food, eat between meals, soda and soft drink consumption (days/week), vegetable consumption (days/week), fruit consumption (days/week), sweet and chocolate consumption (days/week), sleep duration (hours/day) and television viewing (hours/day).

Anthropometric measurements

The weight was measured and recorded in kilogram to all respondent using the Electronic model weighing scale. The height was measured in centimeters using tape measure height to all participants. The BMI (Body Mass Index) is a simple weight-for-height index that is used to classify overweight and obese people. BMI was computed using the following formula: a person's weight in kilograms divided by the square of their height in meters (Kg/m^2). Overweight is defined as a BMI of 25 to 29.9, Obese is defined as a BMI of greater than or equal to 30.0, and healthy weight is defined as a BMI of 18.5 to 24.9 [4].

Statistical Analysis

Under the application of the statistical package (SPSS) ver. (24), the following statistical data analysis methodologies were employed to examine and appraise the study's results: To describe the distribution of categorical data, frequency distributions and percent were utilized, and chi-square statistics were used to examine the equality of distribution of overweight and obesity by selected categories. A P-value of less than or equal to 0.05 was considered statistically significant.

Results

Table(1) shows socio-demographic characteristics in the staff at technical institute-swaira. Regarding to staff age groups (31 -40) years constituted the majority (38.0%).The high percentage of participants were married (84.7%) and lower percentage were divorced (1.3%). Regarding to the "Educational level", greater number of the study sample Institute, college and above, and they were accounted (82.0%). Regarding

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to "Residency" urban were reported vast majority of the studied sample, and they were accounted (81.3 %).

Table (1): Distribution of the Socio-demographic Characteristics in the study sample

Socio-demographic characteristics		Male		Female		Total	
		F	%	F	%	F	%
Age	≤ 30	5	5.6	10	16.4	15	10.0
	31 – 40	40	44.9	17	27.9	57	38.0
	41 – 50	30	33.7	23	37.7	53	35.3
	> 50	14	15.7	11	18.0	25	16.7
	Total	89	100.0	61	100.0	150	100.0
Marital Status	Unmarried	9	10.1	8	13.1	17	11.3
	Married	80	89.9	47	77.0	127	84.7
	Widowed	0	0.0	4	6.6	4	2.7
	Divorced	0	0.0	2	3.3	2	1.3
	Total	89	100.0	61	100.0	150	100.0
Educational Level	Read and write	0	0.0	1	1.6	1	0.7
	Primary school	5	5.6	2	3.3	7	4.7
	Intermediate school	10	11.2	3	4.9	13	8.7
	Secondary school	4	4.5	2	3.3	6	4.0
	Institute, college and above	70	78.7	53	86.9	123	82.0
	Total	89	100.0	61	100.0	150	100.0
Residence	Urban	67	75.3	55	90.2	122	81.3
	Rural	22	24.7	6	9.8	28	18.7
	Total	89	100.0	61	100.0	150	100.0

* F = Frequency, % = Percentage

Table (2) this table shows that distribution of body mass index in the study population the high percentage were (42.0 %) of participants overweight followed by obesity were (30.0%), while the lower percentage were (6.7) of participants underweight.

Table (2): The distribution of body mass index in study the study sample

Classification	F	%
Under weight	10	6.7
Normal weight	32	21.3
Over weight	63	42.0
Obesity	45	30.0
Total	150	100.0

* F = Frequency, % = Percentage

Table (3) this table shows that the distribution of body mass index by age, gender and residence, there were no significant (P= 0.23) variations in BMI between men and women. BMI, on the other hand, differs considerably with age (P=0.003). Overweight and obesity were more prevalent in the (31–40) age group, followed by (41–50) year olds. There were no significant variations in BMI with residency (P= 0.31).

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Table (3): Distribution of body mass index by age, gender and residence

Characteristics		Under weight		Normal weight		Overweight		Obesity		P-value
		F	%	F	%	F	%	F	%	
Gender	Male	6	60.0	18	56.3	43	68.3	22	48.9	P= 0.23 NS
	Female	4	40.0	14	43.8	20	31.7	23	51.1	
Age	≤ 30	2	20.0	6	18.8	3	4.8	4	8.9	P= 0.003 HS
	31 – 40	3	30.0	12	37.5	28	44.4	14	31.1	
	41 – 50	4	40.0	10	31.3	22	34.9	17	37.8	
	> 50	1	10.0	4	12.5	10	15.9	10	22.2	
Residence	Urban	0	0.0	8	25.0	13	20.6	7	15.6	P= 0.31 NS
	Rural	10	100.0	24	75.0	50	79.4	38	84.4	

* F= Frequency, % = Percentage, NS= not significant, HS = highly significant

Table (4) this table shows that the distribution of body mass index by smoking habits and practicing exercise. There was no significant (P= 0.16) differences in BMI with smoking habits shown in study population. While, BMI was highly significantly by practicing exercise (P= 0.000). Distribution to respond no practicing exercise overweight and obesity was (76.2) and (75.6) respectively.

Table (4): Distribution of body mass index by Smoking habits and practicing exercise

Varibles		Under weight		Normal weight		Overweight		Obesity		P-value
		F	%	F	%	F	%	F	%	
Smoking habits	Yes	3	30.0	8	25.0	22	34.9	7	15.6	P= 0.16 NS
	No	7	70.0	24	75.0	41	65.1	38	84.4	
Practicing exercise	Yes	1	10.0	20	62.5	15	23.8	11	24.4	P= 0.000 HS
	No	9	90.0	12	37.5	48	76.2	34	75.6	

* F= Frequency, % = Percentage, NS= not significant, HS = highly significant

Table (5) this table shows that the distribution of body mass index and associated with some factors. There was significant differences in BMI with regular three meals a day, eat fast food, eat between meals and soda and soft drink consumption (days/week) (P= 0.01), (P= 0.03), (P= 0.02) and (P= 0.03) respectively, while there was no significant association in BMI with vegetable consumption (days/week) and fruit consumption (days/week) (P= 0.33) and (P= 0.19) respectively. Regarding to sweet and chocolate consumption (days/week) was significant differences with BMI (P= 0.04). Relation to sleep duration (hours/day) and television viewing (hours/day) was no significant differences with BMI (P= 0.45) and (P= 0.13) respectively.

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Table (5): Distribution of body mass index and associated with some factors

Varibles		Under weight		Normal weight		Overweight		Obesity		P-value
		F	%	F	%	F	%	F	%	
Regular three meals a day	Yes	7	70.0	20	62.5	21	33.3	25	55.6	P= 0.01 HS
	No	3	30.0	12	37.5	42	66.7	20	44.4	
Eat fast food	Yes	4	40.0	11	34.4	38	60.3	29	64.4	P= 0.03 S
	No	6	60.0	21	65.6	25	39.7	16	35.6	
Eat between meals	Yes	2	20.0	11	34.4	34	54.0	28	62.2	P= 0.02 S
	No	8	80.0	21	65.6	29	46.0	17	37.8	
Soda and soft drink consumption (days/week)	< 3	2	20.0	8	25.0	20	31.7	14	31.1	P= 0.03 S
	≥ 3	2	20.0	6	18.8	24	38.1	21	46.7	
	No	6	60.0	18	56.3	19	30.2	10	22.2	
Vegetable consumption (days/week)	< 3	6	60.0	12	37.5	31	49.2	16	35.6	P= 0.33 NS
	≥ 3	2	20.0	17	53.1	27	42.9	26	57.8	
	No	2	20.0	3	9.4	5	7.9	3	6.7	
Fruit consumption (days/week)	< 3	3	30.0	6	18.8	28	44.4	14	31.1	P= 0.19 NS
	≥ 3	5	50.0	23	71.9	31	49.2	28	62.2	
	No	2	20.0	3	9.4	4	6.3	3	6.7	
Sweet and chocolate consumption (days/week)	< 3	3	30.0	10	31.3	33	52.4	24	53.3	P= 0.04 S
	≥ 3	2	20.0	16	50.0	15	23.8	10	22.2	
	No	5	50.0	6	18.8	15	23.8	11	24.4	
Sleep duration (hours/day)	< 6 hrs	2	20.0	10	31.3	20	31.7	14	31.1	P= 0.45 NS
	6 - 8 hrs	4	40.0	15	46.9	35	55.6	25	55.6	
	9 - 10 hrs	4	40.0	7	21.9	8	12.7	6	13.3	
Television viewing (hours/day)	< 2 hrs	2	20.0	5	15.6	17	27.0	20	44.4	P= 0.13 NS
	2 - 3 hrs	2	20.0	8	25.0	17	27.0	6	13.3	
	> 3 hrs	4	40.0	7	21.9	11	17.5	11	24.4	
	No	2	20.0	12	37.5	18	28.6	8	17.8	

* F= Frequency, % = Percentage, NS= not significant, HS = highly significant, S= significant

Discussion

According to the body mass index in the study sample, the high percentage of participants overweight followed by obesity, while the lower percentage of participants underweight. This result reflect the nutritional status of study participants due to the wrong diet behaviors.

These findings are consistent with other research' findings on the prevalence of overweight and obesity [10] they found the overall prevalence of overweight and obesity was 19.20% (95% CI 17.91; 20.66) and 7.25% (95% CI 6.34; 8.14) respectively. The prevalence of high-risk abdominal obesity was 15.48% (95% CI 15.45; 15.50). The prevalence of overweight (22.41% vs. 15.99%) and obesity (10.68% vs. 3.61%) was significantly higher in females than males.

Study [11] found the overall crude prevalence of overweight and obesity in the total population were 20.8% and 8.4%, respectively. Obesity increased across the age gradient, peaking in the 51- to 60-year age group in men and women.

In contrast, research conducted by [12] present related to the study participants' different eating habits; higher consumption of

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obesogenic and energy-dense foods in the study population could contribute to the disparity in the prevalence of overweight and obesity.

In terms of distribution of body mass index by age, gender and residence, there were no significant variations in BMI between men and women. BMI, on the other hand, differs considerably with age. Overweight and obesity were more prevalent in the (31–40) age group, followed by (41–50) year olds. There were no significant variations in BMI with residency.

Other research [13], which found that body weight, grew with aging until the age of 49, and then slightly dropped after 50. The accumulation of fat with age may be owing to the younger participants' higher appetites, which leads to increased energy intake, a fat-rich diet, and proportionally reduced energy expenditure due to decreased participation in physical activity.

According to the body mass index with smoking habits and practicing exercise. There was no significant differences in BMI with smoking habits shown in study population. While, BMI was highly significantly by practicing exercise. Distribution to respond no practicing exercise overweight and obesity. Unhealthy dietary habits and lack of physical activity cause risk factors of increase body weight that lead to overweight and obesity.

Findings of [14] support these, Obese and overweight persons reported reduced levels of physical activity. When compared to normal weight adults, those with a BMI of 35 were two to three times more likely to report poor levels of physical activity.

Furthermore, the body mass index and associated with some factors. There was significant differences in BMI with regular three meals a day, eat fast food, eat between meals and soda and soft drink consumption (days/week), while there was no significant association in BMI with vegetable consumption (days/week) and fruit consumption (days/week). Regarding to sweet and chocolate consumption (days/week) was significant differences with BMI. Relation to sleep duration (hours/day) and television viewing (hours/day) was no significant differences with BMI. Overweight and obesity because of over-nutrition have progressed from a minor health issue to a major public health concern. Dietary patterns play an important role in the development of overweight and obesity.

As evidenced by a study by [15], which found a significant positive relationship between food consumption patterns and BMI using multiple linear regression, junk food eating patterns, typified by high intake of sweets such as chocolates, ice cream, meals with added sugar, fried foods (French fries, hamburgers, popcorn), and soda beverages, were found to be associated with overweight and obesity in cross-sectional studies.

Conclusions

This study discovered were (42.0 %) of participants have overweight, (30.0%) of participants have obesity. BMI significantly with age (P=0.003). BMI was highly significantly with practicing exercise (P= 0.000), and there was significant differences in BMI with regular three meals a day, eat fast food, eat between meals and soda and soft drink consumption (days/week).

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Recommendations

The study recommends participate in physical activity as a means of losing weight. Sports and other domestic activities are examples of the kinds of things that can be used to get rid of excess body fat. This will aid in the maintenance of a healthy body. Overweight and obesity can cause a wide range of health problems for people of all ages, thus educational activities (seminars, lectures, posters, and courses) can be delivered to people at various levels of the community and to better understand the influence of obesity and overweight on adults' performance, behavior, and outcomes, a more advanced strategy is needed.

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Ethical clearance: Ethical approval obtained from Technical Institute Al-Suwaira /Middle Technical University. Participants in the study completed consent forms acknowledging their understanding that their participation is voluntary and that the information would be treated in confidence and used exclusively for research purposes.

Conflict of interest: Nil

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انتشار السمنة وزيادة الوزن بين الموظفين في المعهد التقني الصويرة في الجامعة التقنية الوسطى

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الملخص

خلفية الدراسة: تُعرّف زيادة الوزن والسمنة بأنه "تراكم غير طبيعي أو مفرط للدهون يشكل خطراً على الصحة". السمنة هي خامس أسباب الوفاة في العالم. زيادة الوزن والسمنة لدى العمال البالغين هو مصدر قلق عالمي للصحة العامة. يرتبط بارتفاع مخاطر الإصابة بمرض السكري من النوع ٢ ، وارتفاع ضغط الدم ، وأمراض القلب التاجية ، والسكتة الدماغية ، والسرطان ، فضلاً عن زيادة نفقات الرعاية الصحية ، وانخفاض إنتاجية العمل ، وخسارة الأموال.

اهداف الدراسة: لتقييم مدى انتشار زيادة الوزن والسمنة ومعرفة العلاقة مع بعض عوامل الخطر بين الموظفين في المعهد التقني بالصويرة في الجامعة التقنية الوسطى.

المرضى والطرائق: دراسة وصفية مقطعية تم إجراؤها في المعهد التقني بالصويرة في الجامعة التقنية الوسطى. تضمن اختيار (١٥٠) مشترك من الموظفين. تم أخذ العينات لموظفي المعهد بطريقة الاختيار العشوائي (عينة احتمالية). وجمع البيانات عن طريق أسلوب المقابلة المباشرة للباحث مع كل مشارك من الموظفين للفترة من ٥ تشرين الثاني ٢٠٢١ إلى ٤ تموز ٢٠٢٢.

النتائج: أظهرت الدراسة ان الخصائص الاجتماعية والديموغرافية. فيما يتعلق بعمر الموظفين (٣١-٤٠) سنة شكلت الأغلبية (٣٨,٠٪). نسبة عالية من المشاركين كانوا متزوجين (٨٤,٧٪) ونسبة أقل مطلقات (١,٣٪) ، مؤشر كتلة الجسم في مجتمع الدراسة كانت النسبة العالية (٤٢,٠٪) من المشاركين بزيادة الوزن ، مؤشر كتلة الجسم كان ذا علاقة من خلال ممارسة الرياضة ($P = 0.000$) ، فروق ذات دلالة إحصائية في مؤشر كتلة الجسم مع تناول ثلاث وجبات منتظمة في اليوم وكذلك تناول الوجبات السريعة (($P = 0.01$، $P = 0.03$)).

الاستنتاجات: وجدت هذه الدراسة أن عددًا كبيرًا من المشاركين يعانون من زيادة الوزن و السمنة. يتغير مؤشر كتلة الجسم كثيراً مع تقدم العمر. كانت هناك اختلافات كبيرة في مؤشر كتلة الجسم بين المشاركين الذين مارسوا التمارين الرياضية بانتظام والمشاركين الذين تناولوا ثلاث وجبات في اليوم و الوجبات السريعة.

الكلمات المفتاحية: انتشار ، سمنة ، زيادة الوزن ، الموظفين ، المعهد ، الجامعة

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