

RESEARCH PAPER

Prevalence of obesity-associated with health issues among Koya Technical Institutes Staff in Kurdistan Region, Iraq

Saman R. Abdullah¹, Kochar Kh. Saleh^{1&3}, Karwan M. Khudhir¹, Kochar A. Mahmood², Bahra R. Hamarashid³

¹Department of Community Health, Koya Technical Institute, Erbil Polytechnic University, Erbil, Kurdistan Region, Iraq

²School of Medicine, Koya University, Koya, Kurdistan Region, Iraq

³Department of Biology, Faculty of Science, Firat University, Elazig, Turkey

ABSTRACT:

The obesity rate and its prevalence are increasing with many complications in the population. Obesity is a condition in which the bodyweight gain extended to the point where it causes obstacles to health. Usually, this extended body weight comes from excessive fat which consequences of the imbalance between calories expended and calories consumed. Pre-test questionnaire by utilizing validation of self-administration as a cross-sectional investigation was carried out to diagnose the overview of obesity and health issue risks among Koya technical staff. The height of the staff was calculated by supporting a measuring tape (Seca 206 body meter) and the mass of the body (kg) was measured by providing weighing scale TANTA. Overall, according to the findings of this study, we conclude that body overweight (54.7%) and obesity (18%) are clear among academics and administrate staff of Koya Technical Institute at Erbil Polytechnic University. While normal body weights are (25.3%) and underweight approximately (2%). Analyses of data showed that obesity is a significant difference between married and unmarried of participants, besides, there are many factors appear to have a great role and association with health situation and body overweight such as (age, gender, and level of education, type of work, income and physical activity). Physical activities and lifestyle have a strong relation with obesity, especially its reveal among administrates rather than academics, because of fewer activities and lack of regular exercise.

KEY WORDS: Prevalence, Obesity, Risk factors, Health issues.

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1.INTRODUCTION:

Obesity has reached a contagious portion of the two sites in advanced and advancing countries. Over the world, an estimated for further one billion ripe being obese and 350 cases are appear effected (Yach *et al.*, 2006). Obesity and overweight are conditions everywhere a main stock of energy is stored in tissue, which leads to a problem or many complication issues related to health, one of the dominant civil well-being problems among industrialized civilization, especially in the USA.

Currently, an obesity well-being problem arises with unindustrialized communities and regions. Fatness is related to half of the most common reasonable death among the population, for instance, blood pressure, cardiovascular disorders, stroke, and diabetes, populations are globally enduring with overweighting and each year increases closely to threefold. Approximately 300,000 people are perishing concerning body overweight, this number of dying by obesity above died vehicle airline accidents (Price *et al.*, 2000). According to (WHO, 2006) obesity in the past was an issue related to a wealthy family and rich nations, however, it's not specific, nowadays there is a health problem of low and middle-

* Corresponding Author:

Saman R. Abdullah

E-mail: saman.abdullah@epu.edu.iq or samanrafeeq715@gmail.com

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income families and nations. Particularly urban one's locations. One of the main risk factors of an expansion incidence and overweight among the public community due to increased consumption of wholly compensate for the energy density of the food's high fat or sugar. Nutritional transformation is this dietary switch (Bourne *et al.*, 2002). In contrast to the food shift, obesity is also due to reduced physical exercise, as many modes of employment and change in travel and urbanization become gradually sedentary (Flegal *et al.*, 1998).

WHO has classified obesity and body overweight by using special measurements a standard overworld which is Body Mass Index, thus $25 \text{ Kg/M}^2 - 29.9 \text{ kg/m}^2$ normal while above is considered as overweight. Globally, many kinds research approved to find detection the body ailment the comorbidities to obesity and have fundamental roles in blindness among many aging patients in consequence diabetic retinopathy, furthermore obesity have a strong association with hormonal abnormality especially in women (Wsoo M. A., 2017, Mohammed and Yousif, 2019). However, in Iraq, which is considered a lower-middle-income country according to the world bank, very little data is available on the extent of the problem of obesity in the academic staffs and some other factors such as disease and low back pain lead to decreased activity and increase the chance to obesity (Khudhir *et al.*, 2018, Khudhir *et al.*, 2017a). The Aim and objectives of the study were to survey the complication of body fat with associated to many factors among the staff of Koya technical institute.

2. MATERIALS AND METHODS

This research was conducted among academics and administrates staff of Koya technical institute at Erbil Polytechnic University between the 20th of January 2018 and the 1st of February 2018. The Ethical Committees of the community health department approved the study; until being used for the analysis, that participant received informed consent in writing. The required sample size was calculated from the Raosoft calculator. A list of all the institute staff was obtained around 160 staff taking part in the study participants. Permanent staff was engaged in this study beside there is no

disabled or sick with chronic illness. 160 of selected to self-character administered questions among technical staffs, 150 of them about 93% had a response, 5 workers leavings the participation, so five workers did not participate in anthropometric measurement.

2.1. Plan and Data Collection:

Data collection: Self-administrative questionnaire was carried out using a standardized questionnaire. A structured questionnaire designed to obtain information regarding age, gender, living place, marital status, level of education, type of job, income), individual factors (physical activity, smoking, alcohol consumption). Age was calculated from the information on birth date and date of the interview. For anthropometric measurement height of staff were admeasurement by utilizing tape meters from (1cm – 2m), participants need to take off their shoes, to prevent the effect of shoes of admeasurement. In addition, the respondent's body weight calculated by digital scale weighting TANITA starts around 1 kg. Participants require to remove any heavy mass to prevent imbalance decrease and increase in body mass (Pengelly and Morris, 2009). The WHO diagnostic criteria were used in classifying the subjects as overweight and obese.

2.1.1. Statistics

Statistical Methods: SPSS was used in the analysis of data; both parameters are classified and measured normally. Descriptive properties interquartile, percentage, frequency, and median of the survey participants were calculated. The relation between obesity and socio-demographic factors was calculated by means of a chi-square study. Statistically significant was considered a p-value < 0.05 . The findings of bivariate analyzes have acted as a framework for multivariate logistic regression research to classify the modified likelihood ratios of variables linked to obesity.

2.1.2. Ethical assessment

permission of morality was received in August 2015 by the Koya Institutes Committee for Morality (Ref: KTI 12512). Each respondent also received informed consent prior to the collection of data. The report told the participants and that it was free to take part in this survey. In addition, participants were guaranteed which all data were considered confidential and would not be used

outside this survey, and were informed regarding the right to refuse it.

3. RESULTS AND DISCUSSION

3.1. RESULTS

There was a total of 150 (response rate = 93%) subjects participated in the study. Non-respondents were those who were refusing to participate in this study and those who did not give approval for measurement of height or weight. [Table 1](#) illustrates the details of the analytics value of individual information who had responded.

Table 1. Socio-Demographics and Individual profile of respondents

Factors	Frequency	Percent age	Median (IQR)
Age groups (years)			36 (16.25)
≤36	76	50.7	
>36	74	49.3	
Gender			
Male	54	36.0	
Female	96	64.0	
Marital Status			
Single	47	31.3	
Married	103	68.7	
Level of education			
Secondary School	4	2.7	
College diploma or equivalent	65	43.3	
Bachelor degree	48	32.0	
Postgraduate degree	33	22.0	
Type of job			
Academic staff	38	25.3	
Administrative staff	112	74.7	
Income			625000(380000)
IQD <500000	65	43.3	
IQD 500000-1000000	80	53.3	
IQD >1000000	5	3.3	

>1000000			
Smoking			
Yes	53	35.5	
No	97	64.7	
Physical activity			
Infrequent (<3 times/week)	93	62,0	
Frequent (≥3 times/week)	57	38,0	
Alcohol Consumption			
Yes	16	10.7	
No	134	89.3	

Age-old and youth of staff between 24 to 56 years, 54.8% younger class (≤34years) while 45.2% older class (>34), the median age 36 years. More than half of them were female (64%), and (36%) were male. The majority were married (68.7%), had postgraduate education level (22%), administrative staff (74.7%), their income was between IQD 500000-1000000 per month (53.3%). The median of income was IQD 625000 per month (interquartile range (IQR) = IQD 380000). As for individual factors, approximately 35.5% of the respondents were smoking and the majority of them (62%) carry out the infrequent physical activity (<3 times/ week). However, only 10.7 % of them were consuming alcohol.

The predominance of body overweight among respondents [Table 2](#) presents and illustrates obesity in KTI staff was 54.7 % and that of obesity was 18.0 %. The distribution of BMI in the study population was as follows: 2.0 % were underweight, 25.3 % had normal BMI, 54.7 % were overweight and 18.0% were obese. Body overweight and obesity aspects.

Table 2. Distribution of body mass index in the population study

Body Mass Index	Frequency	Percentage (%)
Underweight (<18.5 kg/m ²)	3	2.0
Normal (18.5 – 24.99 kg/m ²)	38	25.3

Overweight (≥ 25 - 29.99 kg/m ²)	82	54.7
Obese (≥ 30 kg/m ²)	27	18.0
Total	150	100

The inferential analysis in [Table 3.1](#) illustrates information on individual profiles.

Table 3.1. Risk factors associated with overweight and obesity

Variables	B	S.E	Sig.	Adjusted OR	95% CI
Age				1	
≤36	-	-	-	1	-
>36	0.895	0.606	0.139	2.448	0.747, 8.020
Gender				1	
Male	-	-	-	1	-
Female	-2.620	0.772	0.001	0.073	0.016, 0.331
Marital status				1	
Single	-	-	-	1	-
Married	1.367	0.573	0.017	0.225	0.083, 0.784
Level of education				1	
Secondary school	-	-	-	1	-
College diploma or equivalent	21.90	1813	0.999	1	-
Bachelor's degree	19.74	1813	0.999	1	-
Master degree	20.72	1813	0.999	1	-
Type of job				1	
Academic staff	-	-	-	1	-
Administrative staff	0.021	0.873	0.981	1.021	0.153, 50.714
Income				1	
IQD <500000	1.025	1.480	0.489	2782	0.153, 50.714
IQD 500000 - 1000000	1.494	0	0.228	4.454	4
IQD > 1000000	-	1.238	-	1	0.393, 50.423
Physical activity				1	
Infrequent (< 3 times/week)	2.958	0.638	<0.001	19.268	5.519, 67.274
Frequent (≥ 3)	21.330	18139	0.001	0.999	4

times/week					
Constant					

Inferential statistics there is significant ($p=0.015$) differences between younger groups vs. older groups. Also, BMI significantly varies by sex ($p<0.001$), married status ($p<0.002$), level of education ($p<0.001$), type of job ($p<0.001$), income ($p=0.039$), smoking ($p=0.030$), and physical activity ($p<0.001$). However, no significant differences as ($p=0.576$) of respondents who live in urban and rural areas and BMI with respondents who consumed alcohol or not ($P=0.832$).

3.1.1. Risk factors of obesity

Data analyses determine many complications of obesity as shown in [Table 3.2](#).

Table 3.2. Multiple logistic regressions of predictors of musculoskeletal disorders

Factors	Underweight	Normal weight	Overweight	Obese	P value	
Age	n	%	n	n	n	0.015
Younger group (≤ 36)	0	0	24	44	8	
Older group (> 36)	3	100	63	53.6	30	
			14	38	19	
Gender						< 0.001
Male	3	100	33	53	7	
Female	0	0	86.8	64.6	26	
Living area						0.641
Urban	3	100	38	80	27	
Rural	0	0	100	97.5	100	
Marital status						< 0.001
Single	2	66.7	23	22	0	
Married	1	33.3	15	60	27	

Level of education	0	0	0	0	4	< 0.001
	2		0	0	14.8	
Secondary school	66.7		27	31	5	
			71	37.8	18.5	
College diploma or equivalent	0	0				
	1		5	30	13	
Bachelor's degree	33.3		13	36.5	48.2	
			6	21	5	
Master degree			16	25.7	18.5	
Type of job	0	0	7	25	6	< 0.001
	3		18.4	30.4	22	
Academic staff	100		31	27	21	
			81.6	69.6	78	
Administrative staff						
Income						0.039
IQD <500000	2		24	30	9	
	66.7		73.5	36.6	33.3	
IQD 500000 - 1000000	1		12	51	16	
	33.3		31.5	62.2	59.3	
IQD > 1000000	0		2	1	2	
	0		5	1.2	7.4	
Smoking						0.030
Yes	1		14	35	3	
	33.3		36.8	42.6	11	
No	2		24	47	24	
	66.7		63.2	57.4	89	
Physical activity	1		9	64	19	< 0.001
	33.3		23.7	78	70.3	
Infrequent (< 3times/week)	2		29	18	8	
	66.7		76.3	22	29.7	
Frequent (≥ 3 times/week)						
Alcohol Consumption	0	0	3	10	3	0.832
	3		8	12	12	
Yes	100		35	72	24	
No			92	88	88	

As a daily activity, the economic state of the family all of this method was finally achieved with the significant variables among participants. The result showed 0.073 times as respondents who were female compared to male (OR= 0.073, 95%CI=0.016, 0.331), being obese were 0.255 times higher in respondents who were married as compared to single respondents (OR= 0.255, 95% CI = 0.083, 0.784). In addition, differences of overweight 19.268 in highest level respondents

who were not having a regular exercise (<3 times/week) compared to other respondents who have a regular exercise (≥3 times/week) (OR= 19.268, 95% CI = 5.519, 67.274). The model was a good one and about 62% of differences of obesity were described by way (Nagelkerke R square = 0.615). The Hosmer -Lemeshow test also showed that the model fits well (2=8.823, df=8, p= 0.357).

3.2. DISCUSSION

This study raises and demonstrates the argument of body overweight and some diseases associated with obesity and position of working amongst staffs, around 54.7% to 18% is higher than other academic staffs such as the previous investigation among Malaysia university staffs, who reported the total rate of body fat and obesity was 31.1% to 11.8% respective (Rampal *et al.*, 2007, Khudhir *et al.*, 2017b). Overweight prevalence has been reported in southern China was 25.8% and 7.9% respectively. In Ghana, the obesity of bank workers about 17.8 % and 37.8 % respectively (Addo *et al.*, 2015).

This study manifested that obesity was significant among the older staff than younger staff (77 % vs. 68 % respectively). A similar study conducted and support this result as clear in researches about an adult female in Malaysia, Selangor (Lim *et al.*, 2000, Sidik and Rampal, 2009). There is a significant association between obesity with gender (p < 0.01). Body overweight showed significantly value in woman staff (74%) while the man staff (26%). Similar finding observed in the study of Case and Menendez (2009), that mentioned female staffs had significantly higher BMI than male staffs (Case and Menendez, 2009). Another important association between obesity and marital status found in this research, approximately overweight (p=0.001) who responder is married and overweight and obesity (58.4 % vs. 26.2 %) compared to those who were still unmarried (26.8% vs. 0 % respectively), because of many physiological changes occur after human get married and alter lifestyle, Jeffery (2002) supports this finding in this investigation (Jeffery and Rick, 2002).

The current data of BMI with the type of job in administrative staffs about (69.6% vs. 78% respectively) was higher than academic staff (30.4% vs 22% respectively). In addition,

overweight and fatness have strong concerns with salary and income, whose income more (>1000000 IQD) shows greater body overweight than low salary staff. This result is counterparts with the study of Ziraba and colleagues (Ziraba *et al.*, 2009). It was also noted that non-smoking staff had significantly higher BMI than staff who were smoke ($p < 0.001$).

Inactivity has a great significant risk factor body and creates obesity besides of food source and disorder of homeostasis (Saleh *et al.*, 2019). The prevalence of overweight and obesity between staffs who have infrequent physical activity (<3 times/ week) was (69 % vs 20% respectively) which was higher than obesity between the staffs who have frequent physical activity (≥ 3 times/ week) (31.6 % vs. 14% respectively). This in line with the many study findings, which showed that the level of physical activity decreased the percentage of obesity. They have shown an opposite relationship between obesity, psychological and physical activity, as it's common among other staff in nurse and lecturer in hospital (Staiano *et al.*, 2016, Khudhir *et al.*, 2018). In this study, living area and alcohol consumption have no association with BMI ($p > 0.05$). Multiple logistic regression showed that the female staffs are 0.073 times (OR= 0.073, 95% CI = 0.016, 0.331). The staff who were married 0.255 times more likely to have obesity as compared to the staff who were single (OR= 0.255, 95% CI = 0.083, 0.784). In addition, staff who were not having a regular exercise (<3 times/week) 19.268 chance to have obesity in contrast to staff who have a regular exercise (≥ 3 times/week) (OR= 19.268, 95% CI = 5.519, 67.274).

4. CONCLUSIONS

This investigation found an immense prevalence of obesity and overweight among Koya Technical Institute staff. Socio-demographic and individual factors for instance lifestyle, body physiology related to sex, stage of education, family habits, position in the workplace, income, mode, and physical activity were significantly related to body overweight and obesity. Obesity and body overweight was only estimated by body mass index. The obstacles of this investigation were self-character-reporting questionnaires, in this way the consequences of bias cannot be limited.

This study recommends that high risks of overweight among staff for targeted intervention that induces increased exercise and improves some good habits which lead to reduced body overweight and control the complications of obesity and use superfood instead of energy-dense food.

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Conflict of Interest

The authors stated that there was no potential interest in conflict with regard to this article.

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