MEDWIN PUBLISHERS
Committed to create value for Researchers

The Effects of Eating Habits and Physical Activity on Obesity

Ciftci S[1], Demirag S[2]* and Arikan A[3]

[1]Family Medicine Specialist, Turkey

[2]Professor, Dean, Adnan Menderes University, School of Medicine, Turkey

[3]Public health specialist, Turkey

*Corresponding author: Serpil Demirag, Professor, Dean, Adnan Menderes University, School of Medicine, Aydın, Turkey, Email: sdaydin@adu.edu.tr

Abstract

Obesity is the most important public health problem all around the world. According to the epidemiological studies, socio-cultural and demographic factors and also biological factors can cause the obesity. Obesity has become an important health problem especially in industrialized countries today due to changes in environmental conditions, such as excessive consumption of high energy foods and the gradual decrease of physical activities in our lives. The socio-economic environment and demographic structure are also closely related to the emergence of obesity. Based on all these results of our study, there can be some special programs for the elderly people due to decreasing physical activity parallel to ageing. In order to reduce obesity, people should be informed by media organizations and there must be some public spotlight. To overcome obesity, we should target to the long-term solutions, such as changing lifestyle habits.

Keywords: Obesity; Physical Activity; Lifestyle Habits

Introduction

Obesity is the most important public health problem all around the world. According to the epidemiological studies, socio-cultural, demographic and also biological factors can cause the obesity with the development of modern technology, lifestyle has been changed. People can perform many jobs without physical activity [1]. As the life expectancy rises day by day and because of the sedentary lifestyle, nutrition- and inactivity-related health problems increase.

In the United States (USA), 54.9% of the general population over the age of 20 is estimated to be overweight and 22.5% to be obese. If it increases rapidly, it is expected that the obesity rate in the USA will be 50% in 2025 [2]. The situation does not seem very different in other developed countries [3]. According to the World

Health Organization (WHO), approximately 2 billion adults were overweight and 600 million adults were obese in 2014 [4]. These numbers are twice as much as those of 1980. Nowadays, the second important cause of preventable deaths after smoking is obesity [5].

Over triglyceride synthesis in obesity exceeds the capacity of storage adipocytes (fat tissue). Triglyceride and/or other lipid metabolites are distributed to non-adipose tissue organs such as muscle, liver, pancreas. This phenomenon is defined as ectopic lipid storage. The liver and muscle interact with the insulin signaling cascade. Impaired insulin synapse due to increased apoptosis of pancreatic beta cells induces insulin resistance. The combination of these events ultimately leads to the development of Type 2 diabetes [6]. Induced hypertrophic adipocytes are more likely to be as apoptosis than thin adipocytes. This results in more

infiltration of adipose tissue by immunocompetent cells such as macrophages in obese patients. Immunocompetent cells respectively produce proinflammatory cytokines, attracting and activating the immunocompetent cells in the fat tissue. These pro-inflammatory molecules are released into the systemic circulation and play an important role in the development of subclinical inflammation, often seen in obesity, Type 2 diabetes and atherosclerosis [7]. Besides, psychosocial problems in many patients and huge financial load for the treatment are main concerns in this disease [8].

Childhood and young adulthood of individuals are thought to be the most appropriate periods for acquiring physical activity and feeding pattern. It is also important that the obesity situation in Mugla region has not been studied sufficiently in terms of nutrition, physical activity and obesity. The purpose of the study is to detect correlation between the obesity and nutritional, physical activities in Mugla providence and to create awareness about the obesity in the society. It is also aimed to raise the awareness of the people in society for to gain the habit of healthy diet and physical activity.

Materials and Method

Our research is a descriptive, cross-sectional study, held in Family Health Centers in Mugla from November the first to 31th December 2015. Inclusion criteria were; age 18 years and over, willing to participate in the survey, and who could respond to questions completely. Informed consent forms were also been included in the questionnaire. Before administration, interviewers were informed about the study and the application of the questionnaire. The questionnaires were administered face to face by four interviewers. After questionnaires were applied, participants underwent waist circumference, height and weight measurements. The study was approved by Adnan Menderes University Faculty of Medicine Ethics Committee with the protocol number 2015/658 and date August 17th, 2015 and decision number 14. In addition, permission was obtained from the Mugla Public Health Directorate with the decision number 78793774/215/9939 and date September 15th, 2015.

As a collection tool, aquestionnaire form, consisting four sections and 55 items, was used. The short form of International Physical Activity Questionnaire (IPAQ) was used for evaluation of individuals' physical activity levels. For the data entry and analysis of research using SPSS 17 program, the numbers were given in percentage, mean±standard deviation and median (minimum-maximum).Chi-square test in analytical analysis, Student's T-test, Mann -Whitney U test, Kruskal-Wallis test and logistic regression analysis were applied. A p value lower than 0.05 was considered as statistically significant.

Results

414 people admitted to FPC of Mugla Province were our participants. The average age of the participants was 46.9±18.5. Of the total, 244 participants were women (58.9%) and 170 were male (41.1%). The average waist circumference of participants was 93±14.1 cm. 75% of females (n=183) were with waist circumference of 80 cm or more, and 64.7% of males (n=110) were with waist circumference of 94 cm or more. 162 (39.1%) of the participants were normal and underweight, 153 (37%) were overweight and 99 (23.9%) were obese. According to the international physical activity scale (IPAQ) of people participating in the study, 166 (40.1%) inactive, 161 (38.9%) minimal active, 87 (21%) is very active. Results were shown in table 1.

	n	%
Physical Activity Status		
Inactive	166	40.1
Minimal Active	161	38.9
Very Active	87	21
BMI		
Under 24.99 (Normal and Poor)	162	39.1
25-29.99 (Overweight)	153	37
30 and over (Obese)	99	23.9

Table 1: Physical Activity Status and Body Mass Index (BMI).

Physical Activity MET ScorePoints						
BMI	**n**	**%**	**Mean ±sd**	**Median (min-max)**	**Kw**	**P**
Normal-Poor	162	39.1	2586,3±3682	1146,2 (0-21084)		
Overweight	153	37	2134±3277,1	924 (0-19200)	7.033	**0.03**
Obese	99	23.9	2129,4±4030,3	693,0 (0-26292)		

Table 2: MET ScorePointsDistributionsby Body Mass.

	Body Mass Index								χ^2	p
	Poor		Normal		Overweight		Obese			
	n	%	n	%	n	%	n	%		
Number of daily main meals										
1	1	16.7	1	16.7	2	33.3	2	33.3	24,983	p=0,003
2	6	5.1	43	36.8	46	39.3	22	18.8		
3	5	1.7	104	36	105	36.3	75	26		
4	1	50	1	50	0	0	0	0		
Main meal skipstatus										
Yes	7	4.6	58	37.9	55	35.9	33	21.6	3,211	p=0,782
Sometimes	3	3.5	31	36	31	36	21	24.4		
No	3	1.7	60	34.3	67	38.3	45	25.7		
Skipthe Main Meal										
Morning	4	9.1	17	38.6	11	25	12	27.3	6,339	p=0,386
Lunch	6	3.3	66	36.3	71	39	39	21.4		
Dinner	0	0	6	46.2	4	30.8	3	23.1		
Number of snackmealsperday										
0	3	2	48	32.7	58	39.5	38	25.9	12,279	p=0,198
1	4	2.6	54	35.1	58	37.7	38	24.7		
2	6	6.9	33	37.9	32	36.8	16	18.4		
3	0	0	14	53.9	5	19.2	7	26.9		
Snack mealskipstatus										
Yes	13	3.7	122	34.3	141	39.6	80	22.5	16,050	p=0,013
Sometimes	0	0	149	36	153	37	99	23.9		
No	0	0	18	51.4	9	25.7	8	22.9		

Table 3: BMI with eating habits.

It was questioned where they first applied when people got ill. With a maximum of 218 (52.7%) persons replied as Family Health Centers (FHC), followed by 189 (45.7%) persons with the State Hospital and seven (1.7%) people were referred to the university hospital. 289 (69.8%) individuals consuming three meals a day, 117 (28.3%) consuming two meals, and only six (1.4%) persons had a single meal; lastly there were two people (0.5%) who consume more than three main meals. Out of 239 people who stated that they missed the main meal, 44 (10.6%) skipped the main meal in the morning, 182 (44%) skipped lunch and 13 (3.1%) skipped dinner. The reasons for the main meal skipped are; 183 people (52.2%) did not have time, 89 people (25.4%) were not habitual, 57 people (16.2%) had no appetite, 21 (5.9%) were due to other reasons.

154 (37.2%) people consuming only one snack per day, 87 (21%) consuming two snacks and 26 (6.3%) consuming three snacks were identified. It was determined that 35 (8.5%) people stated that they did not skip snacks. The participant's skipped snacks are examined. 43 people (11.3%) skipped mid-morning snack, 37 people (9.8%) skipped afternoon snack, 27 people (7.1%) skipped night snack and 272 people (71.8%) who skipped more than one meal. The reasons for the snacks skipped are; 90 (17.8%) of the participants did not have time, 277 (54.9%) were not habitual, 99 people (19.6%) had no appetite, 38 (7.3%) were due to other reasons.

365 people (88.2%) stated that they had a regular breakfast, 265 people (64%) stated that they regularly eat lunch, and 400 people (99.6%) who stated that they eat regular dinner in participants. The consumption of vegetables and fruit by the participants was studied. Accordingly, average vegetable consumption was 1.1±0.6 plates. 63 (15.2%) people who did not consume vegetables, 241 (58.2%) people consuming one plate of vegetables a day, 103 (24.9%) people who consumed two plates, seven (1.7%) people consumed three plates. No people consumed four plates or more. Consumed fruit was questioned. The fruit consumption average was 2.1±1.7 fruit. 51 (12.3%) people did not consume fruit, 124 (30%) people consuming one fruit per day, 105

(25.4%) people consuming two, 73 (%17.6) people consuming three, 61 (14.7%) people consuming four fruits and over. 212 (51.2%) person had eaten outside the home who participating in the study. 202 (48.8%) people had not eaten outside the home. 6 people (2.8%)

breakfast, 62 people (29.2%) lunch, 106 people (50%) eat evening meal outside at the home. 35 people (18%) consume more meals outside the home. 162 participants (39.1%) normal and weak, 153 (37%) were overweight and 99 (23.9%) were diagnosed as obese.

BMI	Physical Activity Status			x^2	p
	Inactive	**Minimal Active**	**Very Active**		
Under 24.99 (Normal andPoor)	57 (35.2%)	63 (38.9%)	42 (25.9%)		
25-29.99 (Overweight)	59 (38.5%)	67 (43.8%)	27 (17.6%)	9,209	0.056
30 andover (Obese)	50 (50.5%)	31 (31.3%)	18 (18.2%)		
Total	166 (40.1%)	161 (38.9%)	87 (21%)		

Table 4: Physical Activity Status with BMI.

When we categorically examine the state of physical activity has no significance on BMI (Table 4). A significant difference was found with BMI in terms of MET score (Table 2).

Female gender, marriage, low educational level, above age average, having children, having 2000 TL monthly income and lower, and not smoking and not taking alcohol were found to be more obese than others. When we analyzed with the Logistic Regression Model, marriage (3.855 times), having Type 2diabetes (2.2 times) were found as obesity risk factors. In terms of physical activity status, female gender, old age, marriage, graduated from high school or less educational level, civil servants (2.231 times), parents and people who have lower a monthly income were found physically inactive compare to average. The risk factors for physical inactivity can be said as marital status (marriage: 2.658 times), occupation, less educational level (2.527 times) and female gender (2.231 times).

Discussion

Obesity is an important health problem even in a city, Mugla, in where there are lots of vegetables and fruits, olive oil are produced. According to a research in Ankara on families from different socioeconomic levels about eating habits and the affecting factors, 74.79% of the families have regular breakfast, 67.71% of them have regular lunch and 91.94% of them regular dinner. They also find that majority of families 75 (83%) eat their meals in regular meal times [9]. In our study, 365 participants (88.2%) having regular breakfast, 265 (64%) have regular lunch, and 400 of the participants (99.6%) have regularly dinner. Staying at home maybe affected on the eating meals regularly.

In the Turkish adult population, the standardized prevalence of obesity, with an increase by 40%, reached from 22.3% to 31.2% in 2010 [3]. According to this, in last 12 years, obesity in women population 34% and in men population increased 107% [2]. The prevalence of obesity (BMI>30 kg/m2) in the TOHTA (Turkey Results Of Obesity And Hypertension Study) survey of approximately 25000 people was found to be 36% in women, 21.5% in men and 25% in the general population [10]. According to Turkish Statistical Institute (TSI) 2014 data, 19.9% of the individuals aged 15 and over were obese, 33.7% were overweight, 42.2% were normal weight, and 4.2% were low weight [11]. Gender discrimination; 24.5% of the women were obese and 29.3% were overweight. In males, these rates were 15.3% and 38.2% respectively [11]. In a study conducted by the Ministry of Turkish Health, obesity in Turkey was found to be 41.0% in female and 20.5% in male [12]. In our research, 99 people (23.9 %) were classified as obese. The factors of lower obesity rate in our study maybe due to our research field which Mugla province located in the Mediterranean region. Dietary habits and lifestyle of the Mediterranean region may be a cause of this situation.

In a study conducted by Aktas and his colleagues, 59 (14.8%) were found to have sufficient physical activity level, 174 (43.5%) had low physical activity and 167 (41.8%) were physically inactive. While 22.2% of males had sufficient physical activity, this ratio decreased to 7.8% in females and the difference was statistically significant and this is concordant with our study [13]. In the Kitis and Gumus study; the incidence of severe physical activity for more than 10 minutes in the last week was 9.7%, the frequency of those with moderate physical activity is 30.7% and the frequency of low physical activity was 59.6%.

Demirag S, et al. The Effects of Eating Habits and Physical Activity on Obesity. Med J Clin Trials Case Stud 2018, 2(6): 000192.

Copyright© Demirag S, et al.

According to the IPAQ calculation, most of the women had low levels of physical activity [14]. This result may be related to the social roles of women within and without their family, rather than the biological difference between men and women. Even if women work, being busy with housework causes insufficient time to physical activity. The majority of women in our study are housewives; this may also affect the results.

Conclusion

In conclusion, being married and having diabetes increase the possibility of beingobese3, 855 and 2.2 times, respectively. Being married lower graduation levels, age, female gender; sedentary jobs have been shown to have more impact on possibility of physical inactivity. Based on all these results of our study, it can be said that there should be some special programs for the elderly or risky people in order to increase the awareness and physical activity. In order to reduce obesity, people should be informed by media organizations and there must be some public spotlight. To overcome obesity we should target to the long-term solutions such as lifestyle changing.

References

1. Gokmen DA (2012) Obesity Persistence and Related Factors in Bursa. Uludag University, Faculty of Medicine Department of Internal Medicine, Specialization thesis, Bursa.

2. World Health Organization (2008) Global Strategy on Diet Physical Activity and Health.

3. Bahceci M (2011) Obesity. In: SEMT obesity, dyslipidemia, hypertension Working Group on Turkey Endocrinology and Metabolism Society of Hypertension, Obesity, Lipid Metabolism and Diagnosis and Treatment Guide., Ankara, Miki Printing, pp: 50-80.

4. World Health Organization. Obesity and Overweight.

5. (2015) Guide to Diagnosis and Treatment of Obesity, Endocrinology and Metabolism Association of Turkey, Ankara.

6. Kopelman PG, Caterson ID, Dietz WH, (Eds.), (2010) Clinical Obesity in Adults and Children. Wiley-Blackwell.

7. Lee CD, Blair SN, Jackson AS (1999) Cardiorespiratory fitness, body composition, and all-cause and cardiovascular disease mortality in men. Am J Clin Nutr 69(3): 373-380.

8. Saglam F, Guven H (2014) Surgical Treatment of Obesity. Okmeydani Medical Journal 30(1): 60-65.

9. Aytekin F (1994) A research on eating habits and factors affecting families in different socioeconomic levels in Ankara. University of Ankara, Graduate Thesis.

10. (2014) Association of Endocrinology and Metabolism in Turkey; Obesity, Dyslipidemia, Hypertension Study Group; Obesity Diagnosis and Treatment Guide, 1st Printing, Ankara, pp: 978-605-4011-19-3-12.

11. TUIK (Turkish Statistical Institute) Turkey Health Survey (2014) Newsletter. Issue: 18854

12. Turkey Nutrition and Health Research (2010) Report on the Assessment of Nutrition Status and Habits. Department of Nutrition and Dietetics, Faculty of Health Sciences, Hacettepe University. General Directorate of Health Research. February 2014. Publication No: Ministry of Health- General Directorate of Health Research-2014/0.

13. Aktas H, Sasmaz C, Kılıncer A, Mert E, Gulbol S, et al. (2015) Investigation of the Factors Related to the Level of Physical Activity and Sleep Quality in Adults. Mersin University Health Science Journal 8(2).

14. Kitis Y, Gumus Y (2015) Physical Activity Levels of 20 and Older Women, Determination of Beliefs and Behavioral Stages of Physical Activity. Gumushane University Health Science Magazine/Gumushane University Journal of Health Sciences 4(3).

Demirag S, et al. The Effects of Eating Habits and Physical Activity on Obesity. Med J Clin Trials Case Stud 2018, 2(6): 000192.

Copyright© Demirag S, et al.