A study of obesity causes and its prevalence among faculty members and university staffs and presentation of different strategies to control it

Karim Saleh-Zadeh [1], Dariuosh Marefat [2]

[1.] Department of Physical Education and Sport Sciences, Tarbiat Moallem University, Tabriz, Iran
[2.] Maraghe University, Maraghe, Iran
d.marefat1389@yahoo.co.uk

Abstract: As obesity is produced due to inheritance and environmental factors, in this research, we have been studied the effects of physical activities, and inheritance to increase or reduce obesity. In a case study conducted among 256 faculty members and staffs of Islamic Azad University of Maraghe town in Iran, 155 individuals were selected by simple random sampling method. The subjects of the study were asked to fill out the questionnaires while their under skinned fat was being measured. The results are 1) there is no significant relationship between the rate of obesity and physical activity of university staffs and faculty members. 2) There is no significant relationship between the rate of obesity and nutrition among university staffs and faculty members. 3) There is a significant relationship between the rate of obesity and inheritance among university staffs and faculty members. 4) There is a significant relationship between the rate of obesity and the above mentioned three factors among university staffs and faculty members. 5) There is no significant relationship between the rate of obesity and age among university staffs and faculty members.

[Karim Saleh-Zadeh, Dariuosh Marefat. **A study of obesity causes and its prevalence among faculty members and university staffs and presentation of different strategies to control it.** *Biomedicine and Nursing* 2015;1(1):49-54]. http://www.nbmedicine.org. 9

Keywords: Obesity; physical activity; nutrition; inheritance; age

1. Introduction

Technology progress on and wealthy life provided more leisure time for human being and this caused less active life. So, a person who, doesn't work out not only he can't resist against physical activity and work but also he will suffer from fatigue, physical and mental problems. One of the problems arising from nutrition and sanitary disorder in the current advanced era is obesity. Obesity can be a great problem for health and sanitary, because very soon they will having work and ability problems and the person will be vulnerable against diseases and in case of accidents reduces his resistance and it will lead into mental and physical problems. Most of the diseases in obese people are very intense. Mortality rate of diabetic and liver, intestine bile duct diseases in obese people are more than mortality reasons of some diseases such as hemorrhage and coronary diseases. From sanitary point, obesity shortens life [1]. According to the studies, every one kilo overweight averagely reduces life and this is true that obese people live less than thin ones. According to another studies done in France, the mortality reason in obese people is in "60%" of heart stroke or blood pressure and cardiovascular failure. In "20%" of the cases brain stroke is due to vascular brain damage and the remaining percents are muscular, hepatic failure and Diabetic and specialists in this research plotted a linear curve for mortality rate that increases due to overweighting, it means that a 10% overweight increased mortality rate as 13% in men and 9% in women [2]. Dengo and et al (2010) recognized obesity as a dangerous factor for cardiovascular diseases and other chronic diseases such as Hyperlipidemia, Hyperinsulinemia, Hypertension and Coronary premature Artery. There are many factors in obesity development. Obesity can be due to overeating or less physical activity or laziness and some believe that obesity is the cause of mental problems due to social pressures [3]. Eating habits and cultural factors influence appetite and overweight. In short, there are many papers written about the social, economical, cultural and political conditions that shows the importance of this case. However two main factors that are very important include good nutrition and lack of physical activity. In spite of increasing awareness and technology advance and automatic lifestyle are changing rapidly and there are more inclination toward high calorie foods with attractive appearance from one hand and decreased in physical activities, increased overweight and obesity in different countries such as our society, on other hand. The Most people use different diets or even drugs, to be free of overweight, but commonly they are failed or they don't reach the ideal weight or sometimes will suffer more from overweight or other diseases. Dublin & Lotka incited in [4] studied obesity. They believed that death in obese people is 25 to 75 percent more than ordinary people. Some people with overweight of 5-14% have "22%" higher mortality rate and other

people with overweight of 15-24%, have 44% higher mortality and some people with overweight of "25%" or higher have "74%" higher mortality rate. Also, the results show that obesity is getting worse with age. People awareness about obesity hazards and its related outcomes show that the number people with overweight problem and obesity is increasing [5].The recent study that done by center for diseases controls and preventions shows that the number of Americans with 30% overweight is increased from one person of "18" people in 1991 to one person of "5" persons in 1998. As it was said before, body weight is determined by energy reception and its consumption. Many treatment programs for obesity, that focus on food reduction and the role of energy consumption proved to the extent that patients are encouraged to training and sport [6-7]. According to Mayer observations, in physical activities that causes obesity is because of the fact that they don't observe energy reception. Obese people shouldn't eat more than ordinary people although they have less physical activity. Lee et al (2004) found that the most convincing reason of obesity is rather simple and that is the lack of physical activity [8]. The researches about different methods for weight lost indicated that using a special method can cause some problems. For example, resorting to diet alone to lose weight and fact (body net weight) is reduced also and this fact influences the capacity of physical activities [9-10].

If nutrition strategies are used along with physical activity as planned, it can be a good method for weight lost. However, obesity and overweight whether due to overeating or less physical activities or genetically, being numerous hazards and outcomes and it is one of the dangerous diseases of the new era. So being aware of obesity and finding good solutions and strategies for weight lost is very important.

2. Material and Methods

Statistical populations in this research are including faculty members and staffs of Azad University of Maraghe town who are working in education year of 85-86. The staffs are "104" and faculty members are "155" and totally they will be "254" research subjects. Selection of sample is done by random sampling method and of "254" research subjects, according to Morgan table, "155"persons were selected as sample. So the lists of the names are received and after numbering, the research samples were selected randomly from table of numbers. The researcher in this research used some measurement instruments:

a. Caliper: The instrument used for estimation of under skin fat thickness is caliper of (Ross) type and its validity and reliability are proved in local and international researches.

b. Questionnaire: Researcher –built questionnaire in this research consist 15 questions with 15 choices about diet, less physical activity and inheritance. The choices are classified with the criterions (very high, high, average, low and very low) on the scale of (1-5). Reliability of questionnaire is calculated by Cronbach's alpha method and validity of the questionnaire is 0.86.

c. Scale and meter: It is attempted to measure subject's weight and height two times to reduce error. Before measuring, scale error is deleted.

Method

After the statistical sample selection among staffs of universities and faculty members, the subjects were measured one by one. Then writing the date, weight, height and age was recorded in ideal weight form, and in the second stage, their fat percent was measured 3 times by Caliper and are recorded in the forms that were dedicated to every person.

Different formulas are common in measurement of people weight method. The formula explained here are rather simple and are especially for ordinary people. Also, the method and measurement site with caliper are different in men and women explained as the followings:

a. Skinfold in women

Three sites tricep, suprailiac, and thigh are measured for Skinfold thickness to measure fat from the right side of women body. Skinfold test was done on tricep exact between shoulder and elbow. Suprailiac skinfold was measured by estimation of skinfold thickness that is located above thigh joint. Finally, thigh skinfold thickness was measured by placing the person weight on the left leg and loosening of Quadriceps, vertical pinch halfway in front of thigh.

b. Skinfold in men

Skinfold in chest, abdomen and thigh are some sites that are measured for the estimation of men fat percent. Skinfold in chest is located in the external edge of big chest muscle that is measured by a diagonal pinch to sternum. Abdomen skinfold is measured with a diagonal pinch with the distance of 1-2 cm from belly button and the measurement of thigh skinfold as mentioned above, is like thigh skinfold measurement in women. After measurement of skinfold in men and women, each of three mentioned sites in men and women are measured three times and their means are calculated and then the results are written in ideal weight form to obtain means set of the given values of three sites. Then, the means of skinfold is placed on "three-skinfold sum" in the right side of Nomogram and we calculate fact percent obtained in Nomogram according to the age. By accepting the fact that body weight is a combination of two components of fat weight and fat-

free weight. Fat-free weight is calculated. The formula of using fat-free weight record form and ideal weight is explained in the followings. Finally, ideal weight of a person that was measured by scale was compared to identify reduction or increased of weight in each person.

Body weight × fat percent = fact weight

fat weight – body weight = Fat-free weight

The Formula is given as:

Body ideal weight =

$$\frac{\text{Fat-free weight}}{\text{Ideal fat percent -100\%}}$$

3. Results

Hypothesis No (1): There is significant relationship between obesity and physical activity of staffs and etc.

Considering the following results of table (1) investigated by Pearson correlation coefficient at r=0.079, it is observed that there is not significant relationship between obesity amount and physical activity of universities staffs and faculty members.

Hypothesis (2): There is significant relationship between obesity amount and staffs diet and etc.

Hypothesis (3): There is significant relationship between obesity amount and staffs inheritance and etc.

According to the results of table (3) investigated by Pearson correlation coefficient at r=0.325, it is observed that there is significant relationship between obesity amount and inheritance of university staffs and faculty members (r=0.325, p=1%, df=125).

Table 1: The hypothesis No (1) data

Physical activity	Obesity	
0.079 125	1.000 0 125	Pearson correlation Obesity significance F
1.000 0 125	0.079 0.381 125	Pearson correlation Physical activity significance level F

Considering the following results of questionnaire table (2) investigated by Pearson correlation coefficient at r=0.033, it is observed that there is not significant relationship between obesity amount and nutrition of university staffs and faculty members. (r=0.033, p=0.711, dp=125).

Table 2: The hypothesis No (2) data

Nutrition	Obesity	
0.033 0.711 125	1.000 0 125	Pearson correlation Obesity significance level Freedom degree
1.000 0 125	0.033 0.711 125	Pearson correlation Nutrition significance level F

Table 3: The hypothesis No (3) data

Inheritance	Obesity	
**0.325 0.000 125	1.000 0 125	Pearson correlation Obesity significance level F
0.000 0 125	0.375 0.000 125	Pearson correlation inheritance significance level F

**Correlation is significant at 0.01level.

Hypothesis (4): There is significant relationship between obesity amount three factors inheritance, nutrition and physical activity) of staffs and etc.

According to the results of table (4) investigated by Pearson correlation coefficient, it is observed that there is significant relationship between obesity amount and three factors (inheritance, nutrition and physical activity) of university staffs and faculty members (r=0.256, p=0.01, dp=125).

According to the results of table (5) about the relationship between age and obesity that are analyzed by Pearson correlation coefficients, it is shown that there is not significant relationship between the amount of obesity and age of faculty members and university staffs.

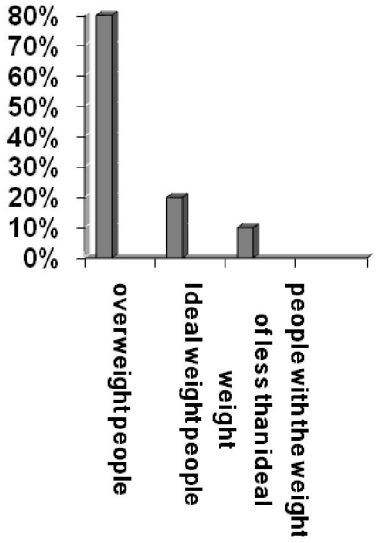

Chart 1: The comparison of the number of people with overweight, ideal weight and thin

Table 4: The hypothesis No (4) data

Three factors	Obesity	
**0.256 0.004 125	1.000 0 125	Pearson correlation Obesity significance level Freedom degree
1.000 0 125	0.256 0.004 125	Pearson correlation three factors (inheritance, nutr and phy-activ) significance level Freedom degree

**Correlation is significant at 0.01level.

Table 5: The relationship between obesity amount and age of staffs etc

Age	Obesity	
0.060 0.508 125	1.000 125	Pearson correlation Obesity significance level F
1.000 125	0.060 0.508 125	Pearson correlation Age significance level F

4. Discussion and Conclusion

Results show that physical activities ratio has an effective role on people's weight loss and gain. When physical activities increases in a person, their weight decreased and conversely, when physical activities decrease and energy reception is normal, the weight increased [11-15]. Sluttery et al (2006) agree that if physical activity amount and long-term training activities are done along with less food restriction, there will be weight loss. Also, the results of the current research show that research subjects didn't have considerable weight loss in sport and training activities. So, the results of above research don't prove our findings in this research.

Despite the above findings, other researchers emphasis on the role of energy restriction and mere diet to avoid weight loss despite sport trainings and they believe that there is no considerable speed in fat removal of subjects under endurance with low pressure trainings three times a week in comparison with the group who were at home [1,3,16-19]. This finding is very compatible with the results of the current research and shows that there is not significant relationship between obesity amount and physical activity of university faculty members and staffs. It is possible that reporting the physical activity to avoid weight gain by people is under the question.

While most of the above mentioned researchers believe that [20] when subjects were under long trainings with limited energy reception, they were more inclined to lose body free fact in comparison with the others who used merely diet.

Different studies about obesity and its relationship with diet show that overweight and obesity are common nutrition disorders and nutritional factors are very important in this factor. Different researchers give importance to the role of diet to avoid overweight and believe that free fat mass reduction for poor nutritional diet people and three times week training and also for the people who were not under the trainings. Also, they believed that free fat mass reduction is directly related to the cost reduction of rest energy in weight loss program [2-3, 21-23] and indicated that the type of food including carbohydrates and fats have effective role on the amount of obesity and deleting or limiting one of them in food lead into weight loss and less obesity. But despite the above findings in the current study, the researcher in a study indicates that there is not significant relationship between obesity amount and diet of university faculty members and staffs and the given results are not compatible with the above findings, as most of the subjects used low-calorie diet.

But the view of other researchers is reflected despite the above findings and all agree with these findings that fat free mass reduction (muscle) with diet to lose weight, reduces systole and Diastole blood pressure in the experimented group and there is a significant relationship between BMI and blood pressure [14-15,24-26]. Considering the type of subject's diet of the above research that most of them used low-fat foods and the results of the researches of the data show that their obesity is not related to their diet and it is possible that other factors are involved. By considering the fact that environmental factors are important in obesity prevalence but inheritance factor has determining role on obesity. Different scientists know one of the effective factors on the obesity of children and teenagers, the obesity of parents. Different researchers all believe that in addition to the effect of environmental effects on obesity amount, inheritance factor plays an important role on children obesity [2,14,19,23,27]. As children early in the life learn recognition of delicious foods, consumption method, starting time, finishing time of eating, and the amount food from their parents. By considering the above items in the current research with high reliability, it can be said that there is significant relationship between obesity and inheritance of faculty members and university staffs and this finding is compatible with the results of the above researcher's studies. So it can be said that women benefits from inheritance more than men, while most of the male subjects recognized inheritance factors the reason for obesity. In addition, it can be said that mother as the coach and nurse of the child in life can have an important role on choosing food and the number of meals. Considering this fact, obese children of today are obese men and women of tomorrow. As it is observed in the research population, most of the people in the above society are overweight as their parents and parents obesity is a dangerous factor for children obesity and its linear increase make children obese. Also, it is shown that children of obese parents are more exposed to the danger of obesity in comparison with the children of normal parents [22,24].

The result of researches was different about obesity reasons and some of the researchers gave different views about inheritance and others about environmental factors including physical activity, job, nutrition, excitement and etc.

Different findings show that there is significant relationship between obesity and three factors of inheritance, diet and physical activity [11-14,22,27] and these findings were compatible with our findings in this research and prove the results of the current research. Although our findings about each of hypothesis 1 and 2 are different from the results of hypothesis 4, we can say that physical activity, nutrition alone could not be effective in the reduction and increase of weight in hypothesis 1 and 2 but they were very effective in this hypothesis. This due to this fact that each of the factors alone has ignorable influence on all the issue and the most important effective factors was inheritance factors and by little influence of nutrition and physical activity create an important and total factors.

Three factors of physical activity, nutrition and inheritance with high reliability could have more effects on the amount of obesity among research subjects.

In addition to the findings of the researcher in four hypotheses, it is necessary to analyze the amount of relationship between age and obesity of subjects. According to the research data, we can say that there is not significant relationship between obesity and age of faculty members and university staffs.

These findings show that if nutrition and physical activity factors were significant, young subjects should be completely healthy and there should not be any obesity among them. However, as inheritance factor was effective and significant, it is obvious that at any age, young, middle age or elderly based on inheritance, people can become obese and this finding is very compatible with the results of different researches (11, 22-24, 27).

Corresponding Author:
Dariuosh Marefat
Maraghe University
Maraghe, Iran
E-mail: d.marefat1389@yahoo.co.uk

References

1. Dengo A. L; Elizabeth A. D; Orr J S; Marinik E L; Ehrlich E; Davy B M; Davy K P (2010). Arterial Destiffening With Weight Loss in Overweight and Obese Middle-Aged and Older Adults. American Heart Association, Inc; 55:855.
2. Bowman SA, vineyard BT. (2004). Fast food consumption of U.S.adults: impact on energy and nutrient intakes and overweight status. J Am col Nutr 23: 163-168.
3. Berenson GS, David S. Freedman*, William H. Dietz*, Sathanur R. Srinivasan, and Gerald S. Berenson (1999). The relation of overweight to cardiovascular risk factors among children and adolescents. the Bogalusa Heart study, pediatrics. Vol (103): 1175-1182.
4. Mokdad A H, Ford E S, Bowman A, Dietz W H, Vinicor F, Bales V S, Marks J S(2003). Prevalence of obesity, Diabets and obesity Related Health Risk factors. journal of the American. Medical Association. Vol. 289(1), pp. 7-9.
5. Lissau I, Overpeck MD, Ruan WJ, Due P, Holstein BE, Hediger ML.(2004). Body mass index and overweight in adolescents in13 European countries, united states.Arch pediatr adolesc.Med.Vol.158.pp:27.
6. Haymes, Emily M. FACSM; Grubbs, Laurie M.; Mathis, R. Reed; Panton, Lynn B. FACSM. (2004). Effects of a 24 month lifestyle physical Activity program on Bone Density and body weight. Medi. & scie in sports & Exer. Vol. 36(5). P. 231.
7. Nichols-English, Lemmon C.R, Litaker M.S, Cartee S.G, Yin Z, Gutin B and Barbeau P(2006). "Relations of black mothers' and daughters' body fatness, physical activity beliefs and behavior. "Ethnicity & Disease, vol.16, no. 1.172 -179.
8. Lee J ; TAN C. S ; CHIA K. S ; TAN C. E ; CHEW S. K ; ORDOVAS J. M ; TAI E. S(2004). The lipoprotein lipase s 447 polymer phism and playmor phisms, smoking, and alcohol consumption. Jour, of lipid Research, vol. 45. pp. 1132-1139.
9. Ekblom, orjan (2005). Physical Fitniess and overweight in Sweden children and adolescents. university college of physical Education and sports Stockholm, Food & Nutrition Research, Vol 49, No 4.p 172-179.
10. Pétur. B Júlíusson,Mathieu Roelants, Trond Markestad, Robert Bjerknes(2011). Parental perception of overweight and underweight in children and adolescents. Acta Paediatrica. Vo 100(2) p. 260–265.
11. Dietz, W.H. and Robinson, T.N. (2005). Overweight Children and Adolescents. New England Journal of Medicine, vol. 20, pp. 350.
12. Harton, s. (1999). Opportunities for Investments in Nutrition in low in come Asia. Asia Development Review. Vol. 17 (1/2): spp. 246. 273.
13. Hill. J.O & H.R. wyatt. (2005). Role of physical activity in preventing and treating obesity. J.Appl. physiol No. 99(2). Pp. 765-770.
14. Miyaki A, Maeda S, Yoshizawa M, Misono M, Saito Y, Sasai H, Endo T, Nakata Y, Tanaka K, Ajisaka R(2009). Effect of weight reduction with dietary intervention on arterial distensibility and

endothelial function in obese men. Angiology. 60: 351–357.
15. Slattery ML, Sweeney C, Edwards S, Herrick J, Murtaugh M, Baumgartner K, Guiliano A, Byers T(2006).Physical Activity patterns and obese in his Non-Hispanic White woman.J.Medicine & science in sports & Exercise.Vol. 38(1). Pp: 33-41.
16. Cardon G, Philippaerts R, Lefevre J, Matton L, Wijndaele K, Balduck A-L and Ilse De B (2005). Physical activity levels in 10- to 11-year-olds: clustering of psychosocial correlates. Public Health Nutrition: 8(7), 896–903.
17. Charlotte vlaar. (2004). Obesity as cause of Emotional Eationg. Kenya In statue of professional counseling. 457-460.
18. Mota J, Ribeiro J, Santos M.P, and Gomes H(2006). "Obesity, physical activity, computer use, and TV viewing in Portuguese adolescents." Pediatric Exercise Science, vol 17, no 1. 113-121.
19. Young, J.,Enslin, J & Kuco, B (2004). Exercise intensity and glucose tolerance in trained and nontrained subjects. Journal of applied physiology,vol. 67, pp. 39-43.
20. Jabbour, G; Lemoine-Morel, S; Casazza, G A; Hala, Y; Moussa, E; Zouhal, H(2011). Catecholamine Response to Exercise in Obese, Overweight and Lean Adolescent Boys. Medicine & Science in Sports & Exercise. Volume 43 - Issue 3 - pp 408-415.
21. Gibson, S.A (1996). Are diets high in nonmilk extrinsic sugars condo to obesity? Your of Human Nutr and Dietetics. Vol. 9. p. 283.
22. Modaresi, A(2005). Fast foods result in fat and diabetes. http://www.setarehsorkh.com.
23. Touati, S; Meziri, F; Devaux, S; Berthelot, A; Touyz, R M; Laurant, P(2011). Exercise Reverses Metabolic Syndrome in High-Fat Diet-Induced Obese Rats. Medicine & Science in Sports & Exercise. Volume 43 - Issue 3 - pp 398-407.
24. Colditz. G.A. (1999). Economic costs of obesity and inactivity. Med. Sci. sport Exerc. Vol. 31, No. 11. ps. 663-667.
25. Guo SS, Wu W, Chumlea CC, Roche AF(2002). Predicting overweight and obesity in adulthood from body mass index values in childhood adolescence. AM. J. clin. Nutr. Vol. 76. spp. 633-658.
26. Sinha R, Fisch G, Teague B,. Tamborlane W V, Banyas B, Allen K, Savoye M, Rieger V, Taksali S, Barbetta G, Sherwin R S and Caprio S (2002). Prevalence of Impaired Glucose tolerance among children and Adolescents with marked obesity. England Jou Medicine. Vol. 346. pp. 802-810.
27. Wisemandle W, Maynard LM, Guo SS, and Siervogel RM(2000). Childhood weight, stature, and Body mass lndex Among Never over weight, Early-onset overweight and late onset overweight groups. Pediatrics. Vol. 106(1) p, 132.

4/28/2015