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Prevalance of Overweight and Obesity among Physical Education and Sport Undergraduate Students

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ABSTRACT

Although obesity and overweight prevalence rates mostly available for specific populations such as school aged children and adolescents in Turkey, little research is focused specific and possible less affected populations. This study aims to determine prevalence overweight and obesity rates in physical education and sports undergraduate students. A cross-sectional design study implemented in Amasya University. Participants were 127 (52 girls, 75 boys) physical education and sports undergraduate students aged 17-26 years old. The mean age of participants were 20.89(S.D= 2.12). Implemented in Amasya University Results showed that 83.5% of students were normal, 8.7% were underweight and 7.9% were overweight. These results suggest that physical education and sports undergraduate students also risk for obesity. Effective intervention and prevention programs may also develop for this specific populations.

KEY WORDS: Overweight, Obesity, physical education and sports students, Turkey.

INTRODUCTION

Overweight and obesity are serious public health problems and obesity typically defined as a condition of abnormal or excessive fat accumulation in adipose tissue (Musaiger, 2011). It is known that obesity cause many physical, psychological, social and economic problems in the world. Previous studies showed that obesity associated with many health problems including type 2 diabetes mellitus, coronary heart disease, certain type of cancer, sleep apnoea,osteoarthritis and certain musculo-skeletal disorders such as low back pain (Kopelman, 2000; Wolf & Colditz, 1998). Obesity is also linked to some psychiatric illness such as mood, anxiety, and eating disorders. Its social negative consequences are also well documented. Because of its unaesthetic qualities, people who are overweight or obese are arouses negative perception from observers and obese people generally hold responsible for their current condition. Obese individuals also stigmatize by society since their undesirable physical characteristics and face some unwanted behaviors. 28% of teachers say being obese that can happen someone is the worst thing, parents of obese children also provide less college support for their obese children compared to their slim children and these discrimination also occurs health settings, schools, workplaces and social settings(Puhl & Brownell, 2001). These discriminations partly explain by contemporary society values. Contemporary societies give a great importance to appearance. A good physical appearance is a requisite for success and happiness for most people in these societies. Being a slim girl or having a v-shaped body for boy means to have the society's ideal body image. In case of lack of these qualities people feel anxious and decrease their self-esteem. In line with this notion Şahin(2012)demonstrated that adolescents with high social appearance anxiety can have low self-esteem. As well as its physical, psychological, social negative consequences, It has been reported that obesity's' economic burden is also high. Studies from different countries such as Australia, Netherland, and France revealed that obesity related health care expanses corresponds to 2 % to 4 % their annual health care costs(Lévy, Lévy, Le Pen, & Basdevant, 1995; Segal, Carter, & Zimmet, 1994; Seidell & Deerenberg, 1994). These negative consequences are intrigued by researchers and the causes of overweight and obesity is also investigated. Previous research evidenced that Consumption of high calorie and rich fat containing foods, irregular eating habits, eating snacks, low physical activity, living in a high income country, being a housewife, living a sedentary life, family history of obesity(mother or father), watching television long periods of time, regularly drinking sugary beverages, unhealthy dieting practices, cultural values are some of these causes(for a review see: Musaiger, 2011). As well as causes and consequences of overweight and obesity, another important concern is prevalence of this situation. Because planning and implementing effective prevention and intervention programs aiming to reduce and prevent overweight and obesity requires the knowing sociodemographic and physical chacteristics of possible attendants in community.

Over the last 50 years, the increasing rate of overweight and obese people in the world is alarming. For instance, Flegal, Carroll, Kuczmarski, and Johnson(1997) examined the prevalence of overweight and obesity in a

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nationally represented adult sample of United States of America(US) between 1960 to 1994 and reported that overweight people markedly increased in this period. This trend also similar for children and adolescents. Booth et al.(2003) noted that the prevalence of overweight increased 60-70% between 1985 to 1997. Obesity also raised two to four times in this period aged 7 to 15 children. Recent studies are consistent with this finding. Studies from different part of the world including developing and developed countries such as Germany, Austria, Belgium, Canada, Croatia, Czech Republic, Bahrain, Iran, Kuwait, Lebanon, Libya, Morocco, Oman, Palestine, Saudi Arabia, Tunisia, Denmark, England, Estonia, Finland, France, Greece, Greenland, Hungary, Ireland, Israel, Italy, Latvia, Lithuania, Macedonia, Malta, Netherlands, Norway, Poland, Portugal, Russia, Scotland, Slovenia, Spain, Sweden, Switzerland, Ukraine, United States also demonstrated that overweight and obesity are high in these countries, overweight rates ranged 4.7 % to 71.1% and obesity rates ranged 0.4% to 53% for each sexes or both among adolescents and adults(Janssen et al., 2005; Musaiger, 2011). Consistent with this obesity rates, According to recent estimates of World Health Organization (WHO), 700 million people are overweight and 300 million people are obese in the world(WHO, 2002). Turkey is also not an exception. Yumuk et al.(2005) examined the prevalance of overweight and obesity in a cross-sectional study including 12866 adults in Konya, one of the most populated city in Turkey located the Central Anatolia Region of Turkey. They revealed that overweight and obesity are common in adults 38.7% of the men, 34.1% of the women are overweight and 16.8% of the men and 36.3% of women are obese. Turkish children and adolescents also affect considerable from this epidemic. A study by Akış, Pala, İrgil, Aydın, and Aksu(2003) including 5795 children aged 6-14 years old in a city of Marmara Region, Bursa provinence, revealed that 9.4% of girls, 8.4 % of boys were overweight, Obesity rates were also 1.5% and 1.8% for boys and girls, respectively. In an another study focused on adolescents aged 12-17 years old, Öner et al.(2004) reported that overweight and obesity among girls were 10.6% and 2.1% respectively while ıt was 11.3% and 1.6% among adolescents boys. Although these studies congruent with each other, most recent studies demonstrated a dramatic increase in this population. For example, Muslu, Özşaker, Yardımcı, and Gerçeker(2012) examined the prevalence of overweight and obesity among 7-15 aged students. They revealed that 13.6 % of boys, 12.9% of girls were overweight and obesity among boys and girls were 21.5% and 13.7%.

Although mentioned studies contributed the substantially existing research in terms of possible risk factors and prevalence rates, these studies are limited at least two ways. First, Most of these studies specifically focused on general population such as adults, adolescents and children or specifically handicapped populations such as housewives. Specific and possible less effected populations such as doing regularly physical activity people often neglected. Physical education and sports teacher candidates are one of them. Physical education and sports undergraduate students regularly implements physical activities as a part of their curriculum. For this reason, they are probably less vulnerable compared to other specific populations. Second, the prevalence rates considerable changes different part of the word as well as diverse region of a specific country. Previous research showed in Turkey that individuals living in industrialized province are more likely to be overweight or obese compared to less developed province and little is known about developing provinces such as Amasya.

METHOD

Participants and Procedure

A cross-sectional study involving in a sample of 127 physical education and sports undergraduate students (75 boys and 52 girls) aged 17 to 26 years old was obtained from Amasya University. The simple random sampling method was used. Simple random sample method is the most widely used in cross-sectional studies and every member of the universe has the equal chance to be drafted(Cohen, Manion, & Morrison, 2007). The mean age of participants was 20.89 with a standard deviation of 2.12. According to Amasya University 2013-2014 Student Affairs figures, One hundred sixty four students enrolled the physical education and sports department. Of these students 28 were absent the administration day. So, a total of 136 students attendant to study but five of the students did not report their weight and four of the students did not report their age. Due to this reasons, nine students excluded the dataset. Participants were diverse in terms of socioeconomic status. The response rate was nearly 74%. Data collected between December 2013-November 2013. Before the research was undertook, necessary permissions obtained from Amasya University Ethic Committee(Verdict number:2014/5). The questionnaire was developed with the help of two experts from guidance and counseling department for to achieve validity of questionaire. All two expert had at least master level education, had at least three international articles and experienced about questionaire development. Informed consent was obtained from all participants and ethical considerations including voluntary participation, confidentiality, and anonymity also clearly explained. The questionnaire administered by students and completed under the supervision of author during the class time. The questionnaire took about 10 minutes to complete. After students completed the questionnaire, a small incentive, a chocolate, distributed the participants for their participation. Self-reported weight and height used in this

research. Because previous research demonstrated that self-report weight and height is highly correlated with over .90 correlation coefficient and they are reliable for assessing obesity related morbidities and behaviors in adolescents(Rowland, 1990; Strauss, 1999). Body Mass Index(BMI) is calculated as weight (kg)/ height square (m2). WHO's recommended guidelines used for classification of BMI as underweight, normal, overweight, and obese. According to WHO (2000) individuals who have a BMI equal or lower than 18.49 is considered as underweight, individuals who have a BMI between 18.50 to 24.99 is considered as normal, individuals who have a BMI between 25 to 29.99 is considered as overweight and individuals who have a BMI equal or higher than 30 is considered as obese. All data analysis was performed with the help of the SPSS software.

Measures

Participants completed a questionnaire including information about their gender, grade level, age, father and mother education level, family marital status, status of parents(live or dead), number of siblings, perceived income level, monthly income, family monthly income, birth order, parental attitude(e.g authoritarian or democratic), evaluation of family relationships, perceived school achievement, number of same sex close friends, number of opposite sex close friends, weight and height. Only gender, grade level, age, father and mother education level as well as weight and height reported ın the results section.

RESULTS

Table 1 *Descriptive statistics, mean, and standard deviation of variables.*

Variable	Frequency	Percentage	Mean	S.D
Gender				
Girls	52	40.9		
Boys	75	59.1		
Grade Level				
Freshman	39	30.7		
Sophomore	26	20.5		
Junior	34	26.8		
Senior	28	22.0		
Age				
17	1	0.8		
18	16	12.6		
19	19	15.0		
20	24	18.9		
21	24	18.9		
22	18	14.2		
23	6	4.7		
24	9	7.1		
25	7	5.5		
26	3	2.4		
Mother Education Level				
Illiterate	12	9.4		
Only read and write	9	7.1		
Primary School Graduates	65	51.2		
Secondary School Graduates	22	17.3		
High school Graduates	16	12.6		
College Graduates	3	2.4		
Father Education Level				
Illiterate	1	0.8		
Only read and write	7	5.5		
Primary School Graduates	49	38.6		
Secondary School Graduates	24	18.9		
High school Graduates	36	28.3		
Academy Graduates	1	0.8		
College Graduates	9	7.1		
Weight			65.60	11.09
Height			1.73	0.82

Table 1 shows descriptive statistics about the findings of the study. As seen Table 1, 40.9 % of the study sample consists of girls and 50.1% were boys. Among the students in the sample 30.7% were freshman, 20.5 %

were sophomore, 26.8 % were junior, 22% were senior. Among those students 0.8% were 17 years-old, 12.6% were 18 years-old, 15 % were 19 years-old, 18.9% were 20 years-old, 18.9% were 21 years-old, 14.2% were 22 years-old, 4.7% were 23 years old, 7.1% were 24 years old, 5.5% 25 years old and 2.4% were 26 years old. Among mothers of the physical education and sports undergraduate students in the sample 9.3 % were illiterate, 7.1 % were only able to read and write, 51.2 % were primary school graduates, 17.3 % were graduated from secondary school, 12.6 % were high school graduates, and 5.9% were bachelors. Among father of the participants 0.8% were illiterate, 5.5 % were only able to read and write, 38.6% were primary school graduates, 18.9% were graduated from secondary school, 28.3 % were high school graduates, 0.8% were academy graduates, and 7.1% were bachelors. It can be seen that our sample's parental education level is low. 5.9% of the mothers and 7.9% of the fathers have academy or bachelor graduation. This ratio also reflects the current average educational level of people in Turkey(Şahin, Barut, & Ersanlı, 2013b). According to Turkish Statistical Instıtute Address Based Population Registration System (ABPRS) 2012 year results, 47.24% of the population in Turkey have primary school graduation or below(Şahin, Barut, & Ersanlı, 2013a; Şahin et al., 2013b). The mean weight of participants were 65.60 kilograms (*S.D*=11.09 kilograms) and the mean height were 1.73 meters(*S.D*=0.82 meters).

According to suggest cut-off scores of WHO, Table 2 presents distribution of underweight, normal, overweight and obese students with regard to gender. As shown in Table 2, 17.3 % of girls, 2.7% of boys were underweight, 80.8% of girls, 85.3% of boys were normal and 1.9% of girls and 12% of boys were overweight. None of the students were obese. In the total sample, 8.7% were underweight, 83.5% were normal, 7.9% were obese.

Table 2 *Distribution of students according to gender and body mass index*

Gender	Body Mass Classification							
	Underweight		Normal		Overweight		Obese	
	Number (n)	%	Number (n)	%	Number (n)	%	Number (n)	%
Girl	9	17.3	42	80.8	1	1.9	-	-
Boy	2	2.7	64	85.3	9	12	-	-
Total	11	8.7	106	83.5	10	7.9	-	-

DISCUSSION

This study investigated the prevalence of overweight and obesity in physical education and sports undergraduate students aged 17-26 years in Amasya University. Based on self-reported weight and height, This study revealed that 2.7% of boys, 17.3% of girls were underweight, 80.8% of girls, 85.3 %of boys were normal, 1.9% of girls, 12% of boys were overweight. In total 83.5% of students were normal, 8.7% were underweight. The overall prevalence of overweight and obesity (BMI≥25) in physical education and sports undergraduate students was 7.9%. None of the physical education and sports undergraduate students were obese. This results is inconsistent with Arabacı and Çankaya(2007)'s study which is specifically designed to measure physical activity level of physical education and sports undergraduate students. They reported that 3.2% of physical education and sports undergraduate students were underweight, 64.4% were normal, 27.6% were overweight, 4.6% were obese. Although the same classification criteria used for body mass index, Arabacı and Çankaya(2007)'s sample was mainly male compared to our study. Different sample characteristic may explain these contradictory findings.

Although this study contributed limited research on overweight and obesity rates among physical education and sports undergraduate students in Turkey, researchers consider one important limitation. This study used self-reported weight and height to determine prevalence of overweight and obesity. In addition to self-report weight and height, many different available measurement methods used in the literature such as skinfold, waist-hip ratio, waist circumference and objectively measured weight and height. Further research may use some of these techniques to determine prevalence overweight and obesity in physical education and sports undergraduate students. In conclusion, the results of this study stress further in depth and comprehensive research on prevalence of overweight and obesity. At the same time, this study also emphasize that the obesity risk also not an exception for physical education and sports undergraduate students. In order to help overweight physical education and sports undergraduate students effective prevention and intervention programs must be developed by researchers.

REFERENCES

1. Akış, N., Pala, K., İrgil, E., Aydın, N., & Aksu, H. (2003). Bursa ili Orhangazi ilçesi 6 merkez ilköğretim okulunda 6-14 yaş grubu öğrencilerde kilo fazlalığı ve obezite. *Uludağ Üniversitesi Tıp Fakültesi Dergisi*, *29*(3), 17–20.
2. Arabacı, R., & Çankaya, C. (2007). Beden Eğitimi Öğretmenlerinin Fiziksel Aktivite Düzeylerinin Araştırılması. *Uludağ Üniversitesi Eğitim Fakültesi Dergisi*, *20*(1), 1–15.
3. Booth, M. L., Chey, T., Wake, M., Norton, K., Hesketh, K., Dollman, J., & Robertson, I. (2003). Change in the prevalence of overweight and obesity among young Australians, 1969-1997. *The American Journal of Clinical Nutrition*, *77*(1), 29–36.
4. Cohen, L., Manion, L., & Morrison, K. (2007). *Research methods in education*. London: Routledge.
5. Flegal, K. M., Carroll, M. D., Kuczmarski, R. J., & Johnson, C. L. (1997). Overweight and obesity in the United States: prevalence and trends, 1960–1994. *International Journal of Obesity*, *22*(1), 39–47. doi:10.1038/sj.ijo.0800541
6. Janssen, I., Katzmarzyk, P. T., Boyce, W. F., Vereecken, C., Mulvihill, C., Roberts, C., … Group, T. H. B. in S.-A. C. O. W. (2005). Comparison of overweight and obesity prevalence in school-aged youth from 34 countries and their relationships with physical activity and dietary patterns. *Obesity Reviews*, *6*(2), 123–132. doi:10.1111/j.1467-789X.2005.00176.x
7. Kopelman, P. G. (2000). Obesity as a medical problem. *Nature*, *404*(6778), 635–643. doi:10.1038/35007508
8. Lévy, E., Lévy, P., Le Pen, C., & Basdevant, A. (1995). The economic cost of obesity: the French situation. *International Journal of Obesity and Related Metabolic Disorders: Journal of the International Association for the Study of Obesity*, *19*(11), 788–792.
9. Musaiger, A. O. (2011). Overweight and Obesity in Eastern Mediterranean Region: Prevalence and Possible Causes. *Journal of Obesity*, *2011*. doi:10.1155/2011/407237
10. Muslu, G. K., Özşaker, M., Yardımcı, F., & Gerçeker, G. Ö. (2012). Aydın İlindeki Okul Çağı Çocuklarında Obezite ve Aşırı Kiloluluk Prevelansı. *Uluslararası Hakemli Akademik Sağlık ve Tıp Bilimleri Dergisi*, *2*(2), 68–79.
11. Oner, N., Vatansever, U., Sari, A., Ekuklu, E., Güzel, A., Karasalihoğlu, S., & Boris, N. (2004). Prevalence of underweight, overweight and obesity in Turkish adolescents. *Swiss Medical Weekly*, *134*(35-36), 529–533.
12. Organization, W. H. (2000). *Obesity: Preventing and Managing the Global Epidemic*. World Health Organization.
13. Organization, W. H. (2002). *The World Health Report 2002: Reducing Risks, Promoting Healthy Life*. World Health Organization.
14. Puhl, R., & Brownell, K. D. (2001). Bias, Discrimination, and Obesity. *Obesity Research*, *9*(12), 788–805. doi:10.1038/oby.2001.108
15. Rowland, M. L. (1990). Self-reported weight and height. *The American Journal of Clinical Nutrition*, *52*(6), 1125–1133.
16. Şahin, E. (2012). *Bazı değişkenlere göre ilköğretim ikinci kademe öğrencilerinin benlik saygıları ve sosyal görünüş kaygıları* (Master Thesis). Ondokuz Mayıs Üniversitesi, Samsun,Turkey.
17. Şahin, E., Barut, Y., & Ersanlı, E. (2013a). Parental Education Level Positively Affects Self-Esteem of Turkish Adolescents. *Journal of Education and Practice*, *4*(20), 87–97.
18. Şahin, E., Barut, Y., & Ersanlı, E. (2013b). Sociodemographic Variables in relation to Social Appearance Anxiety in Adolescents. *The International Journal of Social Sciences*, *15*(1), 56–63.
19. Segal, L., Carter, R., & Zimmet, D. P. (1994). The Cost of Obesity. *PharmacoEconomics*, *5*(1), 45–52. doi:10.2165/00019053-199400051-00009
20. Seidell, J. C., & Deerenberg, I. (1994). Obesity in Europe: prevalence and consequences for use of medical care. *PharmacoEconomics*, *5*(Suppl 1), 38–44.
21. Strauss, R. S. (1999). Comparison of measured and self-reported weight and height in a cross-sectional sample of young adolescents. *International Journal of Obesity*, *23*(8), 904–908. doi:10.1038/sj.ijo.0800971
22. Wolf, A. M., & Colditz, G. A. (1998). Current Estimates of the Economic Cost of Obesity in the United States. *Obesity Research*, *6*(2), 97–106. doi:10.1002/j.1550-8528.1998.tb00322.x
23. Yumuk, V. D., Hatemi, H., Tarakci, T., Uyar, N., Turan, N., Bagrıacik, N., & Ipbuker, A. (2005). High prevalence of obesity and diabetes mellitus in Konya, a central Anatolian city in Turkey. *Diabetes Research and Clinical Practice*, *70*(2), 151–158. doi:10.1016/j.diabres.2005.03.030.