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# Prevalence of Overweight and Obesity Among Adults In Kosovo

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***Abstract:*** *Purpose: Monitoring overweight and obesity is important for evaluating targeted interventions, preventing or reducing overweight and obesity. The purpose of this research was to confirm the hypothesis H: A if there are or not statistically significant differences between the socio-demographic characteristics of the participants and the weight status of the respondents in Kosovo. Methods: Participants were 200 male-female persons, of which 100 male-female persons were from urban areas, 100 male-female persons were from rural areas, the material was collected during March 2021. Body mass index (BMI) was calculated from self-reported height and weight. Results: The results show that the percentage of underweight was 1.2%, normal weight 30.8%, overweight 46.5%, and obesity included 21.5% of respondents. More males than females were overweight (54.6% vs 37%) of the women surveyed. Category >60 years - older people were significantly more overweight (53.4%) and obese (34.1%) of respondents than middle-aged and younger adults. Retired people make up a larger share of overweight and obesity (82.0%) of respondents, compared to employees, unemployed and students. People from urban areas were significantly more overweight than people in rural areas (49.3 vs 33.3%) and obese (23.3 vs 13.3%). Conclusion: In accordance with the research objective and hypotheses, we also obtained the research results show that the hypothesis H: A is proved which shows that there are statistically significant differences between the socio-demographic characteristics of the participants and the weight status of the respondents in Kosovo.*

***Keywords:*** *BMI, overweight, obesity, socio-demographic characteristics, Kosovo.*

## Introduction

In recent years, the prevalence of overweight and obesity among children has been reported (Olds et al., 2011; Marques & de Matos, 2016; Who, 2020), and adults (Rokholm et al., 2010; Sundquist et al., 2010) in different countries of the European Union. The prevalence of overweight and obesity is still high and is negatively affecting human health worldwide (Finucane et al., 2011; Ng et al., 2014). Overweight and obesity are the result of energy imbalance over a long period of time. The prevalence of overweight and obesity reduction is worrying (Branca et al., 2007; Khan et al., 2009). Studies have shown that the prevalence of overweight and obesity is high in various European countries. The prevalence of overweight in Europe is estimated to be approximately 50% (Peytremann-Bridevaux et al., 2007), and the prevalence of obesity is about 16% (Berghöfer et al., 2008). Moreover, a recent report by the OECD (Organization for Economic Co-operation and Development) shows that obesity increased from 11% in 2000, 16% in 2014, and 59% in 2022, across the various countries of the European Union (OECD, 2016; Who, European regional obesity report, 2022). Thus, monitoring overweight and obesity is very important for assessing the condition and for the interventions we intend to make in preventing the spread of overweight and obesity.

So the purpose of this paper is to prove the prevalence of overweight and obesity in adults in Kosovo.

## Methods

Data collection was done through a standard questionnaire, a questionnaire which called prevalence of weight status according to socio-economics characteristics, questionnaire was used in various countries of the European Union (Marques et al., 2018). The questionnaire was translated and adapted by a professional team of translators in collaboration with the professors of the faculty of physical education and sports. The research included a group of 200 persons male and female, of which 100 male-female persons were from urban areas, and 100 male-female persons were from rural areas. The participants were treated according to Helsinki Declaration. The protocol was approved by the project evaluation

commission of Faculty of Physical Education and Sport, Pristina, approval number 04-438, 2021. The material was collected during March 2021. Respondents stated their gender and age. Using the reported age, respondents were categorized into three age groups (18–39, 40–59) and ≥60 years). Based on the International Standard Classification of Education(UNESCO, 2012), participants are grouped into three categories of education level: groups with primary, secondary, and higher education. Respondents were asked to report whether they are employed, students, ie unemployed, retired. To determine their place of residence, we asked respondents to report whether they live in urban or rural areas. We asked respondents to state whether they are married or unmarried. Regarding body mass index, body mass index is calculated from self-reported heightand measured and by weight (kg / m2) which is measured by us. BMI (Body mass index) categories are calculated in accordance with the guidelines of the World Health Organization (WHO Consultation on Obesity (1999: Geneva, Switzerland) & World Health Organization, 2000): underweight <(18.5 kg / m2), normal weight (18.5–24.9 kg / m2), overweight (25-29.9 kg / m2) and obese (30 kg / m2).Regarding the prevalence of weight status, according to socio-demographic characteristics and by countries, the percentage was calculated, with a 95% confidence interval (CI). The differences between participants' socio-demographic characteristics and weight status were tested by Chi-square test. Data analysis was performed using SPSS Statistics version 22.

## Results

Table 1 presents the participants characteristics. For the total sample, the average BMI was 26.8 ±3.66. The proportion of underweight was only 1.2%, and 30.8% for normal weight. Overweight was 46.5%and obese accounted for 21.5%. The prevalence of weight status according socio-demographic characteristics is presented.

***Table 1.*** *Participants' characteristics*

| Socio-demographic variable | |
|---|---|
| Sex | |
| Male | 54.2% |
| Female | 45.8% |
| Age group | |
| 18–39 years old | 32.7% |
| 40-59 years old | 33.5% |
| > 60 years | 33.8% |
| Education level of education | |
| Primary school | 17.7% |
| High school | 40.0% |
| the faculty | 42.3% |
| Employment status | |
| Employed | 51.2% |
| Unemployed | 28.5% |
| Student | 1.2% |
| In retirement | 19.2% |
| Place of residence | |
| Urban area | 50.0% |
| Rural area | 50.0% |
| Marital status | |
| Married | 82.7% |
| Not married | 17.3% |
| BMI category | |
| Underweight | 1.2% |
| Normal weight | 30.8% |
| Overweight | 46.5% |
| Obese | 21.5% |

*(BMI, body mass index)*

Table 2 Significantly more men than women were underweight (1.4%, 95% CI: 0-3.5% vs. 0.8%, 95% CI: 0-2.5). Also, more men than women were overweight (54.6%, 95% CI: 46.8-62 vs. 37%, 95% CI: 28.6-46.2%). Older adults were significantly more overweight (53.4%, 95% CI: 42-65.9%) and obese (31.1%, 95% CI: 23.9-43.2%) than middle age and younger adults. Perhaps related with age, students people account for a greater proportion of overweight (66.7%, 95% CI: 0-100%), when compared with employed, unemployed and retire. People from urban areas were significantly more overweight (49.3%, 95% CI: 41.9-55.8% vs. 33.3%, 95% CI: 20-46.7%) and obese (23.3%, 95% CI: 17.7-29.3% vs. 13.3%, 95% CI: 4.4-22.2%) than those who lived in rural areas. 49% (95% CI: 41.9-55.8) of those who live without a partner were overweight compared with 33.3% (95% CI: 31.5–34.2%

***Table 2.*** *Prevalence of weight status according to socioeconomic characteristics*

| | (95% CI) % | | | | |
|---|---|---|---|---|---|
| | **Underweight** | **Normal** | **Overweight** | **obese** | **P** |
| Sex | | | | | 0.001 |
| Male | 1.4 (0, 3.5) | 31.2 (24.1, 39) | 54.6 (46.8, 62.4) | 12.8 (7.1, 18.4) | |
| Females | 0.8 (0, 2.5) | 30.3 (21.8, 38.7) | 37 (28.6, 46.2) | 31.9 (23.5, 40.3) | |
| Age group | | | | | 0.000 |
| 18–39 years old | 1.2 (0, 3.5) | 49.4 (38.8, 60) | 37.6 (27.1, 48.2) | 11.8 (5.9, 18.8) | |
| 40-59 years old | | 33.3 (23, 43.7) | 48.3 (37.9, 59.7) | 18.4 (10.3, 26.4) | |
| > 60 years | 2.3 (0, 5.7) | 10.2 (4.5, 17) | 53.4 (42, 65.9) | 34.1 (23.9, 43.2) | |
| Education level of education | | | | | 0.000 |
| Primary school | 2.2 (0, 6.5) | 8.7 (2.2, 17.4) | 37 (23.9, 52.2) | 52.2 (37, 67.4) | |
| High school | 1 (0, 2.9) | 30.8 (21.2, 39.4) | 50 (40.4, 58.7) | 18.3 (10.6, 26) | |
| the faculty | 0.9 (0, 2.7) | 40 (30.9, 50) | 47.3 (38.2, 57.3) | 11.8 (6.4, 18.2) | |
| Employment status | | | | | 0.001 |
| Employed | 0.8 (0, 2.3) | 30.1 (22.6, 38.3) | 53.4 (45.1, 61.7) | 15.8 (10.5, 22.5) | |
| Unemployed | | 43.2 (32.4, 55.4) | 36.5 (25.7, 48.6) | 20.3 (12.2, 29.7) | |
| Student | | 33.3 (0, 100) | 66.7 (0, 100) | | |
| In retirement | 4 (0, 10.0) | 14 (6.0, 24.0) | 42 (28.0, 56.0) | 40 (28.0, 54.0) | |
| Place of residence | | | | | 0.285 |
| Urban area | 0.9 (0, 2.3) | 26.5 (20.9, 32.6) | 49.3 (41.9, 55.8) | 23.3 (17.7, 29.3) | |
| Rural area | 2.2 (0, 6.7) | 51.1 (37.8, 66.7) | 33.3 (20, 46.7) | 13.3 (4.4, 22.2) | |
| Marital status | | | | | 0.009 |
| Married | 0.9 (0.0, 2.3) | 26.5 (20.5, 32.1) | 49.3 (41.9, 55.8) | 23.3 (18.1, 29.3) | |
| Not married | 2.2 (0.0, 6.7) | 51.1 (35.6, 66.6) | 33.3 (20.0, 46.7) | 13.3 (4.4, 24.4) | |

*Differences between weight status and socio-demographic characteristics were tested by Chi-square*

## Discussion

This research provides us with current data regarding the prevalence of overweight and obesity in adults in Kosovo. The prevalence of overweight and obesity in 2014 in the European Union was 53.1%, but overweight and obesity in recent years has healthy lifestyle programs, especially in relation to diet and physical activity. The results show that over half of the population in our country and also in more than half of the European population is in the category of overweight and obesity (Guh et al., 2009; Dixon, 2010; Herrera et al., 2011).

This study strengthens the thoughts and claims of an epidemic of overweight and obesity that is emerging in our country as well as in most countries of the European Union. There increased and especially in our country, the results show that the percentage of overweight and obesity has increased to 68.0%. In the countries of the European Union the highest prevalence of overweight and obesity is presented in the countries of Eastern Europe when compared to the countries of Central and Northern Europe. Social and economic characteristics have been shown to be associated with the prevalence of overweight and obesity. Prevalence in women was lower than in men, and this has

been confirmed in our recent research (Manios et al., 2005; de Salas et al., 2016), and such a thing is presented in our country where the percentage of overweight in men is presented to 54.6% of respondents, while in women it is presented to 37% of respondents, but obesity is more pronounced in women in 31.9% of respondents as opposed to men to 12.8% of respondents. Also, overweight and obesity were more prevalent in adults aged >60 years, overweight at this age was reported in 53.4% of respondents, while obesity was reported in 34.1% of respondents, these results are similar to other studies in different countries of the European union showing an increase in overweight and the prevalence of overweight that manifests with increasing age-years of life. Regarding the level of education, the highest percentage of overweight is presented to persons with secondary education, which includes 50.0% of respondents, while obesity is more pronounced in persons with primary education, which includes 52.2% of respondents. It is interesting the result of the appearance of overweight in terms of employment status where the highest percentage of overweight is presented to students which include 66.7% of respondents, while obesity is more displayed in people who are retired which include 40% of respondents. Respondents living in urban areas showed a higher prevalence of overweight and obesity, the prevalence of overweight included 49.3% of respondents in urban areas, while the prevalence of obesity included 23.3% of respondents in urban areas., socio-economic status and geographical position (Sarlio-Lähteenkorva et al., 2006; De Salas et al., 2016). The prevalence of overweight and obesity varied in different countries of the European Union, from approximately 32-45% for overweight and 11-20% for obesity (Cohen et al., 2017). Regarding marital status, the highest percentage of overweight is presented to married persons, which includes 49.3% of respondents, and also obesity is more pronounced in married persons, which includes 23.3% of respondents. Kosovo as a country lying in southeastern Europe is presented with a higher prevalence of overweight and obesity, the prevalence of overweight is presented to 46.5% of respondents while the prevalence of obesity is presented to 21.5% of respondents. However, other factors may also explain this variation on the continent of different European Union countries: urban countries, healthy eating habits and ways, physiological and genetic changes (Murtagh & Murphy, 2015; Blundell et al., 2017). It is interesting that the prevalence of overweight and obesity is higher in Eastern European countries (Blundell et al., 2017). Since the countries of Eastern Europe are known for a lower economic situation than the countries of Central and Northern Europe (Stepaniak et al., 2016). Thus, it is important to develop effective are several risk factors for obesity to appear to have become universal, transcending national boundaries. Therefore, there is a need for a better approach in trying to manage overweight and obesity, preparing and applying appropriate programs in physical activity and public health policies, sports and health care professionals should advise people and their patients and explain the importance of engaging in physical activity and maintaining a healthy weight. People should keep in mind that weight loss (approximately 5% of initial weight) is associated with significant improvements in the health of each person, and that this also reduces the cost to the health care system and society at large (Wilkinson et al., 2014; NCD Risk Factor Collaboration, 2016).

## Conclusion

This research was conducted on purpose to verify the prevalence of overweight and obesity in adults in Kosovo. The results show that over half of the population in Kosovo and also in more than half of the European population is in the category of overweight and obesity, this study strengthens the thoughts and claims of an epidemic of overweight and obesity that is appearing in our country as well as in most countries of the european union. In accordance with the research objective and hypotheses, we also obtained the research results shows that the hypothesis H: A is proved which shows that there are statistically significant differences between the socio-demographic characteristics of the participants and the weight status of the respondents in Kosovo.

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