Available online on 15.09.2020 at http://jddtonline.info

Journal of Drug Delivery and Therapeutics

Open Access to Pharmaceutical and Medical Research

Open Access Research Article

Body Mass Index and Factors Related to Overweight among Algerian Women

Messaouda BENHAMZA[1,2], Farouk BOUDOU[2,3]*, Amal BELAKREDAR[4], Malika BENDAHMANE-SALMI [2], Khadidja BENALLAL[2], Sarra GHEFFARI [1]

1. Department of Biology, Faculty of Natural and Life Sciences, Ahmed SALHI University Center, Naama- Algeria
2. Research Laboratory of Environment and Health (RLEH), Faculty of Medicine, Sidi-Bel-Abbes, Algeria
3. Department of Biology, Faculty of Natural and Life Sciences, Djillali Liabes University of Sidi-Bel-Abbes, Sidi-Bel-Abbes, Algeria
4. Eco-development laboratory spaces, Department of environmental sciences, Faculty of nature and life sciences, Djillali LIABES University Sidi-Bel-Abbès, BP 89, 22000 Sidi-Bel-Abbès, Algeria

ABSTRACT

Overweight is responsible for a wide range of health problems, and there is no report on its magnitude among Algerian women. This survey aims to provide valuable information to determine the influence of age categories, marital, parity and professional status on weight gain among a women random sample (115 participants). The comparison of candidates' body mass indexes (BMIs) according to their age categories show that weights and BMIs increased with increasing age. Women over 35 years old have the highest BMI (29.48±6.84 kg/m^2) and belong to the overweight category compared to the other age categories. Marital status analysis showed a significant increase in BMI of married women (27.44±9.62 kg/m^2) compared to unmarried participants, while no direct relationship was observed between increasing BMI and parity status. Whereas, the data on the professional status of the participants indicate that housewives have the highest BMI (27.75±11.83 kg/m^2) compared to working women or students (25.51±6.09 and 22.54±2.75 respectively). From this study, we can conclude that the prevalence of overweight is directly related to the age, martial and professional status of Algerian women.

Keywords: Algerian women, Body weight, BMI, Overweight, Age, Marital status, Professional status.

Article Info: Received 14 July 2020; Review Completed 25 August 2020; Accepted 02 Sep 2020; Available online 15 Sept 2020

Cite this article as:

Benhamza M, Boudou F, Belakredar A, Bendahmane-Salmi M, Benallal K, Gheffari S, Body Mass Index and Factors Related to Overweight among Algerian Women, Journal of Drug Delivery and Therapeutics. 2020; 10(5):219-222
http://dx.doi.org/10.22270/jddt.v10i5.4317

***Address for Correspondence:**

Farouk BOUDOU, Research Laboratory of Environment and Health (RLEH), Faculty of Medicine, Sidi-Bel-Abbes, Algeria

INTRODUCION

Overweight and obesity are an increasing public health problem in both developed and developing countries[1]. The prevalence of overweight and obesity varies from country to country. The World Health Organization (WHO) has estimated that 39% of adults aged 18 and over are overweight or obese[2]. In developing countries the prevalence of obesity is more visible in urban areas with up to 20 to 50% of the urban population of African countries are estimated to be overweight or obese[3]. The association between accumulated risk of non-communicable diseases and overweight and obesity has been well described[4]. Cardiovascular disease, type 2 diabetes and some type's cancers have grown rapidly and will cause more than three-quarters of all deaths in 2030. The risk factors for these non-communicable diseases include high blood pressure, concentrations of cholesterol in the blood, insufficient intake of fruits and vegetables, but also, sedentary lifestyle, overweight, and obesity[5]. Several well-known risk factors for obesity, including poor diet and low levels of physical activity, have been reported [6, 7]. The level of physical activity has an impact on energy balance, and is, therefore, one of the environmental factors that contribute to overweight and obesity[8]. Some studies have found a positive relationship between parity and obesity in all women in developed countries[9]. Research suggests that excessive gestational weight price increases postpartum retention for up to 3 years after childbirth[10]. Therefore, it is important to understand the trends in the prevalence of overweight and obesity in the population and in particular among women in order to plan appropriate interventions. To our knowledge, this has not been described before in Algerian women. Thus, the objectives of this study were to determine the trend of overweight and obesity in Algerian women sample (115 participants) using the self-questionnaire to examine the socio-demographic determinants of overweight and obesity in this sample.

SUBJECTS AND METHODS

The data of this study were obtained using a sample survey, carried out using a self-questionnaire sent by social networks to a random sample of Algerian women (115 participants), focusing on anthropometric measurements

(Age, height, weight and body mass index (BMI)), and socio-demographic characteristic (as marital, parity and professional status). According to WHO, BMI is calculated as weight/height squared (kg/m^2). Commonly BMI ranges are underweight (BMI<18.5 kg/m^2), normal weight (18.5≤ BMI<25 kg/m^2), moderate overweight (25≤BMI<30 kg/m2), severe overweight or true obesity (BMI≥30 kg/m^2), and excessive overweight or severe obesity (BMI≥35 kg/m^2)[11, 12]. Statistical analysis was performed by Sigma-Plot software and all data were expressed by means ± SD at $p < 0.05$ of significance.

RESULTS

One hundred and fifteen women participating in this self-questionnaire (with an average age of 30.89 ± 8.93 years) were divided into three age categories, 22.61% (N = 26) were aged ≤ 25, 54.78% (N = 63) were aged between 25 to 34 old, and 22.61% (n = 26) were aged ≥ 35. The comparison of BMI according to age categories indicates that women over 35 years old have the highest BMI (29.48±6.84 kg/m^2) and belong to the overweight category compared to other age categories (Table 1). Table 2 shows that among the sample studied, 40% (N=46) are married, and have the most significantly higher body weight and BMI, which puts them in the overweight category (27.44±9.62 kg/m^2) compared to the 60% (N=69) of unmarried participants which belongs to the normal BMI category (24.31±7.14 kg/m^2). Comparison of BMI according to parity status (table 3) indicates that among the 46 married women, 26.09% (N = 12) are nulliparous, 10.87% (N = 5) are primiparous, and 63.04% (N = 29) are multiparous, and belong all of them to overweight category, which indicate that there are no direct relationship between increasing BMI and parity status. Whereas, the comparison of BMI according to the participants' professional status (table 4) indicate that housewives have the highest BMI (27.75±11.83 kg/m^2), belonging to overweight category, compared to working women or students (25.51±6.09 and 22.54±2.75 respectively) which belongs to the normal BMI category.

Table 1: Participants' characteristics according to age categories

		Age categories		
Characteristics	Total (N=115)	≤ 25 (N=26)	25-34 (N=63)	≥ 35 (n=26)
Age (years)	30,89±8,93	22.08±2.71	29.60±2.93	42.81±7.33
Height (m)	1.62±0.11	1.62±0.08[a]	1.63±0.10[a]	1.57±0.10[a]
Weight (kg)	65.33±12.31	61.86±10.49[a]	64.76±11.62[a]	70.17±12.03[b]
BMI (kg/m^2)	25.56±8.33	23.52±3.71[a]	24.79±8.31[a]	29.48±6.84[b]

Data are expressed as means ± SD. A comparison between groups was made using the t-test. Column not sharing a common letter (a–b) differ significantly at $p < 0.05$.

Table 2: Participants' characteristics according to marital status

	Marital status Total (N=115)	
Characteristics	Married (N=46)	Unmarried (N=69)
Height (m)	1.61±0.12[a]	1.61±0.10 [a]
Weight (kg)	68.98±13.58[a]	62.89±10.81[b]
BMI (kg/m^2)	27.44±9.62[a]	24.31±7.14[b]

Data are expressed as means ± SD. A comparison between groups was made using the t-test. Column not sharing a common letter (a–b) differ significantly at $p < 0.05$.

Table 3: Participants' characteristics according to parity status

	Parity status Total (N=46)		
Characteristics	Nulliparous (N=12)	Primiparous (N=05)	Multiparous (N=29)
Height (m)	1.61±0.16[a]	1.64±0.09 [a]	1.61±0.10[a]
Weight (kg)	68.71±14.41[a]	75.10±17.24[a]	68.03±12.84[a]
BMI (kg/m^2)	28.30±13.93[a]	28.52±9.77[a]	26.60±5.47[a]

Data are expressed as means ± SD. A comparison between groups was made using the t-test. Column not sharing a common letter (a–b) differ significantly at $p < 0.05$.

Table 4: Participants' characteristics according to professional status

	Professional status Total (N=115)		
Characteristics	Working women (N=45)	Unemployed /housewives (N=41)	Students (N=29)
Height (m)	1.03±0.08[a]	1.59±0.15[a]	1.64±0.08[a]
Weight (kg)	66.78±13.83[a]	67.02±11.99[a]	60.55±8.89[a]
BMI (kg/m^2)	25.51±6.09[a]	27.75±11.83[b]	22.54±2.75[a]

Data are expressed as means ± SD. A comparison between groups was made using the t-test. Column not sharing a common letter (a–b) differ significantly at $p < 0.05$.

DISCUSSION

The prevalence of overweight and obesity continues to increase around the world. The epidemic of obesity and overweight is one of the most important health problems worldwide and is estimated to be the second leading cause of preventable death in high-income countries[11]. In this study, we found that the prevalence of overweight was significantly high in women over 35, which indicates that the BMI of the women studied increases with increasing age. Similar results were observed in a study conducted in Saudi Arabia on 1125 women, aged between 18 and 60, which concluded that obesity and overweight were more prevalent in women between 30–39 years[13]. Song, et *al.,* (2019)[11] found that the prevalence of both overweight and obesity was high in middle age (45–64 years). Moreover, a Danish study indicates that the increase in obesity and severe overweight among the Danish population is in line with the general international increase. There is a considerable increase in the proportion of Danish adults with a BMI ≥ 30 kg / m^2 corresponding to an additional 75,000 people aged 30 to 60 years[12]. In addition, our finding indicated that the marital status analysis showed a significant increase in BMI of married women (27.44±9.62 kg/m^2) compared to unmarried participants. These results are in agreement with the finding of a Polish study which examined the relationship between marital status and BMI, and the prevalence of overweight in a Polish sample population comprising 4122 women, aged from 25 to 60, and conclude that age, marital status, and education were significantly ($P < 0.001$) related to the BMI[14]. A Bangladesh study conducted on BMI of married women and its relation to socio-demographic factors indicated that BMI increased with increasing age, education level of the woman and her husband, and on the contrary, lower BMI was especially pronounced among women who were living in rural areas, non-Muslims, employed women, and separated women[15]. The study conducted by Lee et al. (2005)[16], on the effects of marital transitions on changes in dietary in US women indicated that divorced women had a BMI decrease of 0.65 kg/m2, and compared with women who remained unmarried, women who remarried had a significant increase in mean BMI of 0.41 kg/m^2. Kutob *et al.,* (2017)[17] indicated also that women's transitions into marriage/marriage-like relationship were associated with a greater increase in BMI relative to remaining unmarried women. Additionally, marriage is associated with an increased conversion to becoming obese for African American women[18]. Although our results indicate that the increase in BMI was associated with the marital status there is no direct relationship between overweight and parity status. While other studies indicate that there is a relationship between childbearing and increased BMI in women[19]. Carlos *et al.,* (2017) showed a positive association between parity and overweight among younger mothers. Al-Malki, *et al.,* (2003)[20] The prevalence of overweight and obesity was higher among married women (childbearing age) than among single women. Whereas, the comparison of BMI according to the participants' professional status indicate that housewives have the highest BMI and belong to overweight category, compared to working women or students which belongs to the normal BMI category. This rise in BMI can be explained by the lack of physical activity of housewives compared to working women and students. These results are in agreement with those of Tan and Yim, (2010)[5] who found in their study on weight Status, body Image perception, and physical activity of Malay Housewives, that 50.4% of the housewives were categorized under low physical activity level. The study of Al-Baghli *et al.,* (2010)[21] on obesity and overweight in the eastern province of Saudi Arabia, confirms our results and indicates that obesity was higher among housewives than men. Another study conducted on the obesity risk and related factors in employed and unemployed women indicated that in addition to the lack of physical activities, housewives group had a higher measured glucose level [22]. In summary, our study has shown that among the age categories studied, women over 35 have the highest BMIs and are likely to be severely overweight. Add to this the marital and professional status of women play also an important role in the prevalence of overweight.

CONCLUSION

We assessed the prevalence of overweight among Algerian sample women, and we conclude from the data collected in this study, that the prevalence of overweight is directly related to the age, martial and professional status of Algerian women.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

REFERENCES

1. Poston L., et al., *Preconceptional and maternal obesity: epidemiology and health consequences.* The lancet Diabetes & endocrinology, 2016; 4(12):1025-1036.
2. Kelly T., et al., *Global burden of obesity in 2005 and projections to 2030.* International journal of obesity, 2008; 32(9):1431-1437.
3. Amegah A., Lumor S, and Vidogo F, *Prevalence and determinants of overweight and obesity in adult residents of Cape Coast, Ghana: a hospital-based study.* African Journal of Food, Agriculture, Nutrition and Development, 2011; 11(3).
4. Biswas T., et al., *Increasing prevalence of overweight and obesity in Bangladeshi women of reproductive age: Findings from 2004 to 2014.* PloS one, 2017; 12(7):e0181080.

5. Tan Z. and Yim H, *Weight status, body image perception and physical activity of Malay housewives in Kampung Chengkau ulu, Negeri Sembilan.* Int J Advancement Sci Arts, 2010; 1(1):35-44.
6. Linne Y., et al., *Weight development over time in parous women—the SPAWN study—15 years follow-up.* International journal of obesity, 2003; 27(12):1516-1522.
7. Koch E., et al., *Impact of parity on anthropometric measures of obesity controlling by multiple confounders: a cross-sectional study in Chilean women.* Journal of Epidemiology & Community Health, 2008; 62(5):461-470.
8. General, U.S.P.H.S.O.o.t.S., et al., *Physical activity and health: a report of the Surgeon General*. 1996: US Department of Health and Human Services, Centers for Disease Control and ….
9. Kim S.A., et al., *The relationship between parity and overweight varies with household wealth and national development.* International Journal of Epidemiology, 2007; 36(1):93-101.
10. Gunderson E.P., *Childbearing and obesity in women: weight before, during, and after pregnancy.* Obstetrics and Gynecology Clinics, 2009; 36(2):317-332.
11. Song N., et al., *Prevalence of overweight and obesity and associated risk factors among adult residents of northwest China: a cross-sectional study.* BMJ open, 2019; 9(9):e028131.
12. Heitmann B., *Ten-year trends in overweight and obesity among Danish men and women aged 30–60 years.* International journal of obesity, 2000; 24(10):1347-1352.
13. Azzeh F.S., et al., *Trends in overweight or obesity and other anthropometric indices in adults aged 18–60 years in western Saudi Arabia.* Annals of Saudi Medicine, 2017; 37(2):106-113.
14. Lipowicz A., Gronkiewicz S, and Malina RM, *Body mass index, overweight and obesity in married and never married men and women in Poland.* American Journal of Human Biology: The Official Journal of the Human Biology Association, 2002; 14(4):468-475.
15. Hossain M., et al., *Body mass index of married Bangladeshi women: trends and association with socio-demographic factors.* Journal of biosocial science, 2012; 44(4):385-399.
16. Lee S., et al., *Effects of marital transitions on changes in dietary and other health behaviours in US women.* International Journal of Epidemiology, 2005; 34(1):69-78.
17. Kutob R.M., et al., *Relationship between marital transitions, health behaviors, and health indicators of postmenopausal women: results from the Women's Health Initiative.* Journal of Women's Health, 2017; 26(4):313-320.
18. Fitzgibbons Shafer E., *The effect of marriage on weight gain and propensity to become obese in the African American community.* Journal of Family Issues, 2010; 31(9):1166-1182.
19. Abrams B., et al., *Parity and body mass index in US women: a prospective 25-year study.* Obesity, 2013; 21(8):1514-1518.
20. Al-Malki J., Al-Jaser M, WarsyA, *Overweight and obesity in Saudi females of childbearing age.* International journal of obesity, 2003; 27(1):134-139.
21. Al-Baghli N.A., et al., *Overweight and obesity in the eastern province of Saudi Arabia.* Saudi Med J, 2008; 29(9):1319-1325.
22. Ersoy C. and Imamoglu S, *Comparison of the obesity risk and related factors in employed and unemployed (housewife) premenopausal urban women.* Diabetes research and clinical practice, 2006; 72(2):190-196.