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Obesity and hypertension in nursing students of Qazvin university of medical sciences

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Abstract

Introduction: Students' health is an important issue.

Objectives: This study conducted to examine the prevalence of obesity and hypertension in nursing students of Qazvin University of Medical Sciences.

Method: This is descriptive study conducted in 2018, with a sample of 200 nursing students. Data were collected using an information questionnaire, the anthropometric check list. Participants' blood pressure was measured. Data were analyzed by SPSS 16 using descriptive and analytical tests.

Results: The majority of students in our study were female (71.5%). The mean age of the students was 21.77 ± 3.45 years. The mean of students' body mass index (BMI) was 22.79 2.74± kg/m^2 (19% of the sample were out of the normal range). The mean of systolic and diastolic blood pressure was 124.35 ± 17.77 mm Hg and 78.06 ± 11.53 mm Hg respectively. Pearson's correlation test showed positive and significant statistical correlation between students' BMI with systolic blood pressure (SBP) (P= 0.001, rr= 0.243) and diastolic blood pressure (DSP) (P=0.000, rr= 0.276).

Conclusion: Nursing students in our study were at risk of obesity and hypertension, hence change in their life style is necessary.

Keywords: Prevalence, Risk factors, Obesity, Blood pressure, Nursing students

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Introduction

Obesity is abnormal fat concentration in all or parts of the human body which is the result of calorie intake more than the body needs (1). Nowadays, it is a general health problem and a risk factor for many chronic illnesses such as cardio-vascular disease, hypertension, hyperlipidemia, diabetes and cancer. During the last decades, sudden increase in obesity prevalence in the world has caught so much attention that World Health Organization has reported obesity as an epidemic issue (2, 3). Iran is no exception and various studies have been done in Iran and other countries. As an example, Hassanipour Azgomi et al examined the obesity and overweightness in medical students in Tehran. They reported that 5.1% and 15.2% of students are obese and overweightness respectively (4). In another study, Zar et al in Shiraz Medical University examined prevalence of obesity and overweightness among female students. Results of their study showed that 29.6% and 3.6% of their students are obese and overweightness respectively (3). In a study in Pakistan, prevalence of obesity in medical students was estimated 21% (5). In the above studies, body mass index (BMI) was used for obesity evaluation. Studies have suggested BMI is the best and the easiest way to evaluate obesity and it is easily calculated in clinical levels and also it is related to subcutaneous fat and the whole body fat (8). It is also a quick tool for weight-related-height evaluation and the best way to measure overweightness and obesity. BMI and obesity have direct and independent relation with mortality and morbidity of hypertension (7,9) in which, the relation between obesity and hypertension has been evaluated by many studies (10).

American Heart Association and American Cardio-vascular College in 2017 have given a new definition of hypertension regarding the high diastolic blood pressure (DBP) including mild hypertension 80-89 mm Hg (level 1), moderate hypertension 90-99 mm Hg (level 2) and severe hypertension 100 mm Hg and more (level 3). Additionally, the range of high systolic blood pressure (SBP) includes mild hypertension is 139-139 mm Hg (step 1), average hypertension is 159-140 mm Hg (stage 2) and severe hypertension 160 mm Hg and more (step

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Implication for health policy/practice/research/ medical education

In a study on 200 nursing students, we found positive and significant statistical correlation between students' BMI with SBP and DBP. We concluded that nursing students in our study were at risk of obesity and hypertension, hence change in their life style is necessary.

3) (11). Hypertension is still the most important factor of morbidity and mortality which kills 10.5 million people every year (12,13). It is estimated that in the future, hypertension will increase in the world population (12,14). Hypertension prevalence has also been studied by Hoseini et al. They reported that high SBP prevalence is 20.4% in women and 19.04% in men and high DBP was reported 9.35% in women and 11.25% in men (15). Also, in the study by Nyombi et al in medical students, the prevalence of high SBP based on the new definition was 14.5% and the prevalence of DBP was 33.9% (16). In the study by Chattopadhyay et al, 14% of the students had high blood pressure and 20% of them were at risk of high blood pressure (17).

High blood pressure is known as one of the most important risk factors for the cardiovascular diseases. In most cases, the etiology of high blood pressure is unknown; however, some factors such as obesity play a key role in its complications. In fact, the epidemic obesity, as a health problem in developed and developing societies increases the high blood pressure disease (18,19). In a study, the rise in BMI was related to 8% increase in relative danger of high blood pressure, while it was stated that over 75% of patients with high blood pressure had a BMI of 25 or more (20). Despite the past studies on obesity and hypertension, it was shown that this relation is far more complicated than it is thought to be (21).

Objectives

Although some studies focused on obesity and hypertension in medical students, we could not find any study in this regard in our province, Qazvin. Therefore, the present study was conducted to examine the prevalence of obesity and hypertension in nursing students of Qazvin University of Medical Sciences.

Patients and Methods

Study patients

This study is a descriptive cross-sectional, conducted on 200 nursing students that selected randomly from Qazvin school of nursing and midwifery (2018). Before study, participants received information about study aims and requested to sign informed consent form. They also assured that information obtained from them remained anonymous.

Data collection was carried out in the university environment during day time by researchers. The demographic information was collected by a checklist. This checklist included student's age, sex, marital status, living site and education level. For obesity, BMI was calculated through the standard formula (dividing weight (kg) by height^2 (cm)). In BMI calculation, people were divided into two groups; people with normal or appropriate BMI that had a BMI of less than 25 and those who had abnormal or inappropriate BMI that had a BMI of more or equal to 25 kg/m^2.

Weight measure was done by a standard scale with an accuracy of 0.1 kg on a smooth firm surface with no ups and downs. The height was measured in the standing mode by a tape meter with the accuracy of 1 cm. The tape meter was connected to the wall and the whole sample's height was measured in a fixed location. The student's blood pressure was measured by the blood pressure gauge of the Scala brand made in China in a sitting position with careful principle observations by the educated expert nursing students. The blood pressure unit was considered to be "mm Hg".

Ethical approval

Permission was obtained from Qazvin University of Medical Science deputy of research (ethics code: IR.Qums.REC.1396.325). The study was conducted in accordance with the Tenets of the Declaration of Helsinki (1964) and its later amendments. Informed consents were obtained from the participants.

Data analysis

Data were analyzed by the SPSS software v.16. Mean, standard deviation, frequency distribution tables and Person correlation were used for the data analysis. *P* value less than 0.05 was considered as significance level.

Results

The majority of students in our study were female (71.5%) and single (88.5%). The mean age of the students was 21.77 ± 3.45 years. Most of the student was studying in the undergraduate level (98.5%). Of 200 students, 101 were living in the dormitory. Most had concurrent employment (78.5%). The mean score of height was weight was 167.57 ± 8.75 cm and 64.41 ± 11.53 cm respectively. The mean of student's waistline was 83.28 ± 10.29 cm. The mean of students' BMI was 22.79 ± 2.74 kg/m^2. Totally 19% of students had overweight. Considering the new classification of hypertension, people with high SBP equal to or more than 130 mm Hg and DBP equal to or more than 80 mm Hg have hypertension. In the present study 99 students (49.5%) had SBP more than or equal to 130 mm Hg. Also 123 students (61.5%) had DBP equal to or more than 80 that includes them in the range of people with hypertension. Pearson's correlation test showed a positive and significant statistical correlation between students

BMI with SBP ($P=0.001$, rr = 0.243) and DSP ($P=0.000$, rr = 0.276).

Discussion

Student's health is important. Obesity and hypertension can affect student's health in future. In present study, we examined the prevalence of obesity and hypertension in nursing students of Qazvin University of Medical Sciences. Results revealed that nursing students are at risk of obesity and hypertension. Results also revealed that students with higher BMI had more blood pressure.

Our searches showed limited studies in Iran examined nursing student's obesity and hypertension. However, some studies among other groups of students exists. In one study among nursing students, Rahimibashar et al examined the overweight, obesity and abdominal obesity among 370 girl nursing students in Islamic Azad University of Lahijan. In contrast to finding of present study, the majority of girl university students were in good condition of overweight, obesity and abdominal obesity (22). This difference between studies could be related to different in samples of our study and the mentioned study. Samples of Rahimibashar et al were only girls nursing students since previous study revealed that in medical students, boys have more obese compared to girl students. In a study in 2015, Mohammadi et al examined prevalence of overweight and obesity among dental students at Yazd University of Medical Sciences. Their study includes 181 dental students. The prevalence of obesity was 21%, which is similar to finding of our study (23). Other study by Alavai et al showed obesity in 360 students from Jahrom University. The prevalence of overweight and obesity in this study was 34.16% and 3.04% respectively, which is similar to finding of present study (24).

Results of the present study also showed a significant relationship between students' BMI and their level of blood pressure. In the study by Rahmati et al, the relationship between students' BMI and blood pressure level was detected. Previous study in this regard also showed similar findings (25). Similar to finding of our study, Rahmati et al showed direct and significant relationship between students' BMI and their blood pressure. Likewise, Salem et al examined blood pressure status and its association with obesity and abdominal obesity in students of Rafsanjan University of Medical Sciences. Similar to finding of the present study, results of the study by Rahmati et al showed significant relationships between students' blood pressure and their obesity with abdominal obesity (26). Therefore, policy makers in medical university should pay more attention to this epidemic problem. Hence, an evaluation regarding policies of healthy life style changes and practices is required. Implementation of regular exercise program, getting a healthy nutrition plan and receiving psychological consultation are important interventions that are helpful in this regard.

Conclusion

Obesity and hypertension among young adults might increase risk of several diseases in future. Results of present study revealed that risk of obesity and hypertension is high among nursing students in Qazvin University of Medical Sciences. Consequently, life style change should be considered by students. Policy makers also should pay attention to this problem.

Limitations of the study

We only assessed nursing students and generability of study was limited to this group of students.

Authors' contribution

JA: Supervision of study, Study design and manuscript written. MHF: study design, data collection, data analysis, manuscript written and manuscript submission. HK: Study design and manuscript written, data analysis. ET: data collection and analysis. AM: data collection and analysis.

Conflicts of interest

The authors declare that there is no conflict of interest.

Ethical considerations

Ethical issues (including plagiarism, data fabrication, double publication) have been completely observed by the authors.

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References

1. Shakeri M, Mojtahedi Y, Moradkhani M. Obesity among female adolescents of Tehran schools. Journal of Payavard Salamat. 2013;6(5):403-11.
2. Farrant B, Utter J, Ameratunga S, Clark T, Fleming T, Denny S. Prevalence of severe obesity among New Zealand adolescents and associations with health risk behaviors and emotional well-being. The Journal of pediatrics. 2013;163(1):143-9.
3. Zar A, Mohammad AA. Prevalence of obesity and overweight among female students of Shiraz University of Medical Sciences and its association with physical fitness factors. Community Health (Salāmat-i ijtimāī). 2017;4(2):79-89.
4. Hassanipour Azgomi S, Fathalipour M, DaryabeigiKhotbesara R, Soheiliazad A. Prevalence of obesity and overweight in students of Tehran University of medical sciences in 2015. Journal of Torbat Heydariyeh University of Medical Sciences. 2017;4(4):40-5.
5. Khan ZN, Assir MZK, Shafiq M, Chaudhary A-e-G, Jabeen A. High prevalence of preobesity and obesity among medical students of Lahore and its relation with dietary habits and physical activity. Indian journal of endocrinology and metabolism. 2016;20(2):206.
6. Taghi HS, Fatemeh E, Yaser S, Maryam M. The prevalence of obesity and its relevant factors in high-school students in Jahrom in 2014. Par J Med Sci. 2016;13(4):15-21.
7. Fattahi F, Zarrati M. Relation of body mass index, abdominal obesity, some nutritional habits and hypertension in 25-65 year old population of Tehran. Koomesh. 2011;12(3):229-35.
8. Paknahad Z, Saboktagin M. Studying the blood pressure in Isfahan rural residents and its relationship with BMI. Health System Research (HSR). 2010;6(3):506-12.
9. Peymani P, Heydari ST, Ahmadi SM, et al. The Prevalence of High Blood Pressure and Its Relationship with Anthropometric Indicators; a Population Based Study in Fars Province, IR Iran. Int J Cardiovasc Res 2012; 6(2):40-5.
10. Zhang J, Seo D-C, Kolbe L, et al. Comparison of overweight,

weight perception, and weight-related practices among high school students in three large Chinese cities and two large US cities. J Adolesc Health 2011; 48(4):366-72.
11. Jeffrey S, Charles P. Vega, MD. BP Classification by JNC7 and 2017 ACC/AHA Hypertension Guidelines:, Med Scape., 2018
12. Forouzanfar MH, Liu P, Roth GA, Ng M, Biryukov S, Marczak L, et al. Global burden of hypertension and systolic blood pressure of at least 110 to 115 mm Hg, 1990-2015. Jama. 2017;317(2):165-82.
13. Gakidou E, Afshin A, Abajobir AA, Abate KH, Abbafati C, Abbas KM, et al. Global, regional, and national comparative risk assessment of 84 behavioural, environmental and occupational, and metabolic risks or clusters of risks, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016. The Lancet. 2017;390(10100):1345-422.
14. Zhou B, Bentham J, Di Cesare M, Bixby H, Danaei G, Cowan MJ, et al. Worldwide trends in blood pressure from 1975 to 2015: a pooled analysis of 1479 population-based measurement studies with 19· 1 million participants. The Lancet. 2017;389(10064):37-55.
15. Askary kachoosangy R, Habibi E, Hosseini L. The Investigation of Relationship between Hypertension and High Body Mass Index in 30-60-Year Population of Shahid Motahary Hospital, Marvdasht in 1391. Journal of Sabzevar University of Medical Sciences. 2015;22(3):206-12.
16. Nyombi KV, Kizito S, Mukunya D, Nabukalu A, Bukama M, Lunyera J, et al. High prevalence of hypertension and cardiovascular disease risk factors among medical students at Makerere University College of Health Sciences, Kampala, Uganda. BMC Research Notes. 2016;9:110.
17. Chattopadhyay A, Taraphdar P, KumarSahu B, Sanghamitra M, Ghosh R, Sinha A, et al. A study on prevalence of hypertension and its related risk factors among undergraduate medical students in Kolkata. IOSR J Dent Med Sci. 2014;13(11):1-7.
18. Salem Z, Rezaeian M. Blood Pressure Status and its Association with Obesity and Abdominal Obesity in Students of Rafsanjan University of Medical Sciences in 2007. journal of Rafsanjan University of Medical sciences.2008;7(3):157-164.
19. Azizi F, Esmailzadeh A, Mirmiran P,Shiva N.Anthropometric indicators as a screening measure for cardiovascular risk factors in women.Payesh.2004; 2(3):97-108.
20. Rahimian Mashhad Z, Attarzadeh Hosseini R, Ariannezhad J. The Effect of Aerobic Training and Diet on Cardiova scular Risk Factors and Blood Pressure in Overweight and Obese Women With Hypertension. Iranian Journal of Endocrinology & Metabolism. 2012;12(4):376-451.
21. Mojahedi MJ, Hami M, Shakeri MT, Hasani MH, Ahadi M. The Prevalence and related risk factors of hypertension in young adults in Mashhad Hypertension in young adults. Medical journal of mashad university of medical sciences.2015;58(5): 252-257.
22. Rahimibashar M, Motahari M. Assessment of overweight status, obesity and abdominal obesity among nursing students in Islamic Azad University of Lahijan. IJNR. 2013; 8 (3) :10-17.
23. Mohammadi M, Mahmoodi Darvishani S, Mirzaei M, Bahrololoomi Z, Sheikhi A, Bidbozorg H et al . The Prevalence of Overweight and Obesity among Dental Students Yazd University of Medical Sciences of Yazd in 2014. JRUMS. 2015; 14 (3) :189-198.
24. Alavai S, Ahmadi M, Zar A, Shayan Nooshabadi A, Ashraf N. Obesity and Overweight and Its Association with Lifestyle and Fitness Level in Students. j.health. 2018; 9 (4) :379-388.
25. Rahmati F, Moghadas Y, Shidfar F, Habibi F, Jafari MR. Prevalence of obesity and its relationship with their blood pressure level. Health Monitor Journal of the Iranian Institute for Health Sciences Research. 2004;3(2):123-30.
26. Salem Z, Rezaeian M. Blood Pressure Status and its Association with Obesity and Abdominal Obesity in Students of Rafsanjan University of Medical Sciences in 2007. JRUMS. 2008; 7 (3) :157-164.