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Comparison of risk factors of cardiovascular diseases in male and female nurses

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Abstract:

INTRODUCTION: Cardiovascular disease is one of the most important causes of mortality in the world; identifying and correcting the modifiable risk factors reduce the prevalence of coronary artery disorders. Nurses, with regard to their employment conditions, can be prone to cardiovascular disease. The aim of this study was to compare the risk factors of cardiovascular diseases in male and female nurses.

MATERIALS AND METHODS: In this descriptive cross-sectional study, 263 nurses from Jahrom University of Medical Sciences hospitals were enrolled in the study by convenience sampling. The data collection tool was self-report Framingham Risk Score and has two parts: first part: personal data, history of disease, history, cigarette, stress and fat disorder, alcohol consumption, diet, exercise, and average hours and second part: height, weight, body mass index (BMI), waist-to-stature ratio (WSR), waist-to-hip ratio (WHR), blood pressure, triglyceride (TG), cholesterol, and fasting blood sugar. The benchmark for blood pressure was the JNC-7 guide. The Adult Treatment Panel III was the guideline. Independent *t*-test, Chi-square, and Mann-Whitney tests were used for data analysis.

RESULTS: None of the staff reported smoking or alcohol history. Data were analyzed using descriptive and inferential statistics. There was no statistically significant difference between the mean of fasting blood glucose, systolic and diastolic blood pressure, TG and cholesterol, Framingham percentage, religious practices, green tea and black tea, fish, vegetables, and fast food. The data were analyzed with independent *t*-test, Chi-square, and Mann-Whitney tests. There was no statistically significant difference between the mean of fasting blood glucose, systolic and diastolic blood pressure, TG and cholesterol, Framingham Percentage, religious practices, green tea and black tea, fish, vegetables, and fast food and sports and walking of men and women were not observed. However, there was a statistically significant difference between women and men in indicators such as eating breakfast, family history, fruit consumption, high-density lipoprotein, BMI, WSR, and WHR.

CONCLUSION: The results of the study showed that men are at higher risk for cardiovascular diseases and complications than women.

Keywords:

Cardiovascular diseases, coronary artery disease, nurses, risk factors

Introduction

Cardiovascular disease is one of the leading causes of death in the world. It is predicted that, by 2020, 25 million new cases of heart disease will be diagnosed

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annually and it will become the first cause of death.^[1] Many of the problems and deaths in effect cardiovascular disease are due to risk factors that can be adjusted.^[2] Knowing the main role of the risk factors of this disease in any city provides a new paradigm in its epidemiological methods, so understanding these risk factors create an important perspective on the prevention,

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etiology, and treatment of these disorders.^[3] Providing an appropriate life model, along with other factors such as training and raising awareness, can have an important role in reducing disability and death due to heart disease by changing the lifestyle and motivation.^[1] Nurses are the most important specialized group in hospitals. Their health has a great impact on the health of the recipients. Nurses are also effective in changing the community's behavioral behaviors due to their relationship with patients and their important role in the health-care team.^[4] Nurses, due to the nature of their job, are prone to hard work, stress, burnout, and sleep and eating disorders. This leads to various health complications, particularly cardiovascular disease.^[5] Nurses in all countries should be examined in terms of the level of occupational hazards and public health.^[6] In a case-control study in 52 countries to investigate the risk factors for initial myocardial infarction, 9 modifiable risk factors include smoking, diabetes mellitus, fats, central obesity, blood pressure, diet, physical activity, alcohol consumption, and psychological stress. It was found that up to 90% of heart attacks could be controlled by controlling these factors.^[5,6] In the study of the Nursing Association for the prevention of cardiovascular disease, approximately 20%, 23%, and 17% of nurses in the prevention of cardiovascular disorders had a history of hypertension, lipid disorders, and obesity.^[7] The incidence of cardiovascular disease in nurses can lead to increased costs of treatment, burnout, absence from the workplace, reduced useful life, and quality of patient care and leave, or a change in job.^[3,8] Given that nurses have an important role in promoting public health, their physical problems cause a reduction in their beneficial service duration, pain, and suffering, as well as degradation of the quality and quantity of work.^[1] Focusing on factors such as gender is critical to prioritizing and delivering prevention services in all groups. Therefore, determining the impact and relationship of gender with risk factors for heart disease is very important. Therefore, this study was conducted to compare the risk factors of heart disease in male and female nurses of Jahrom medical sciences hospitals in 2015.

Materials and Methods

In this descriptive cross-sectional study, 263 (210 females and 53 males) nurses from Jahrom University of Medical Sciences hospitals were enrolled by convenience sampling in the study in 2015. After obtaining permission from the Vice President for Research and the ethics committee of Jahrom University of Medical Sciences, an informed consent was obtained from nurses. The researcher started sampling after obtaining permission from hospital management and delivery of questionnaires to nurses working in the departments. The Framingham Risk Score used to determine the

probability of coronary artery disease. Entry criteria: having a nursing degree (at least 2 years), being interested in studying, nonpregnancy, over 25 years of age, having no history of heart disease. First part: personal data, history of disease (diabetes, hypertension, obesity, and dyslipidemia), diet, history of smoking, stress and alcohol consumption, consumption regular exercise, and number of working hours. Second part: height, weight, body mass index (BMI), waist-to-stature ratio (WSR), waist-to-hip ratio (WHR), blood pressure, triglyceride (TG), cholesterol, fasting blood sugar, and individuals. The second part included a list to determine height, weight, BMI, waist circumference, and blood pressure. Blood pressure was measured using a pressure gauge while sitting, after 5 min of rest in a chair, with the support of the left arm. The classification criteria for hypertension were the JNC-7 guideline. Based on this guideline, blood pressure of lower than 120/80 mmHg was considered normal, blood pressure of 140/90 mmHg and higher was considered high blood pressure, and in between the two was considered as prehypertension. Based on the World Health Organization criteria and American Diabetes Association, fasting blood glucose of 70–99 mg/dl was considered to be normal, 100–125 mg/dl was considered as prediabetes, and 126 mg/dl and higher was considered to be diabetes. Smoking at least 5 cigarettes a day for 6 months was considered as a history of smoking. For calculating BMI, weight (kg) was divided by the square of height (m) BMI classification for the Asia population was 27.5–23 (overweight), 32.5–27.6 (Type 1 obesity), 37.4–32.6 (Type 2 obesity), and more than 37.5 (Type 3 obesity). To determine weight, a standard scale with calibrated pan (Richter) was used and the participants were weighted with minimum clothing and without shoes. To determine height, the participants stood without shoes with legs paired so that the knees, hips, shoulders, and back were aligned in a vertical line and the head was facing forward, then, their height was measured from the top of the head using a standard tape measure. To measure WHR, the waist size (the distance between the lower edge of the ribs and iliac spine without compression of the soft tissue) in centimeters was divided by the size of the pelvis (the hip circumference with the tape parallel to the ground) in centimeters. This criterion has a sensitivity of 96.6% in obesity evaluation. The maximum normal amount is 0.90. Increase in this amount indicates central obesity and increased risk of CHD. Another scale for evaluation. Obesity was WSR, which is obtained by dividing waist circumference by height. Numbers higher than 0.50 were interpreted as obesity. This ratio has a sensitivity of 75.4% in determining obesity. SPSS-IBM software version 18 (which was made at the University of Chicago, IL, USA) software was used for data analysis with independent *t*-test, Chi-square, and Mann-Whitney tests.

Results

The mean age and work experience in women were 30.72 (6.62) and 7.31 (6.43) and in men, 8.10 (7.45) and 31.33 (7.72). None of the staff reported smoking or alcohol history. The data were analyzed with independent *t*-test, Chi-square, and Mann–Whitney tests. There was no statistically significant difference between the mean of fasting blood glucose, systolic and diastolic blood pressure, TG and cholesterol, Framingham Percentage, religious practices, green tea and black tea, fish, vegetables, and fast food. However, there was a statistically significant difference between women and men in indicators such as eating breakfast, family history, fruit consumption, high-density lipoprotein (HDL), BMI, WSR, and WHR. Female nurses reported a family history of familial diseases such as diabetes, blood pressure, blood lipids, and stress in their first-degree relatives. BMI and WHR were more than women. Women consumed more fruit than men [Table 1].

Discussion

The aim of this study was to investigate the prevalence of cardiovascular risk factors in male and female nurses. The results showed that there was a significant difference between men and women in indicators such as eating breakfast, family history, fruit consumption, HDL, BMI, WSR, and WHR. The conclusion about breakfast is perhaps justified by the fact that women are more likely to take breakfast than men. Persons <5% of your daily calorie intake received by B 2. 5 times more than those who ate breakfast were prone to atherosclerosis. In those who ate low-calorie breakfast,

there were indications of the onset of blood platelet aggregation in their veins. Overall, people who skip breakfast generally ignored maximum diameter of abdominal fat, waist circumference, respectively.^[1] In a person with a history of coronary heart disease in one of his family, there is a risk of heart disease of 5% that his family has no such problem.^[9] Furthermore, in the study of Salarifar *et al.*, the prevalence and incidence of coronary artery disease and first-degree relatives were observed. In his study, he recommends noninvasive tests on first-degree relatives who have diabetes and who are over 40 years of age.^[3] Hassankhani *et al.* in their study stated that the history of cardiovascular disease in male nurses is more than that of women. In this study, Chi-square test showed that there was no statistically significant difference in the gender difference in family history of cardiovascular disease.^[10] However, in the study of Salarifar *et al.* in men with an increased age, the risk of cardiovascular disease has increased because risk factors in men are more than women. In this study, mean HDL in women was higher than that of men. This finding is in line with study by Salarifar *et al.* This difference in the importance of attention to the health issue in the male sex group is more than ever before.^[3] In the study of Jamshidi and Seif, mean HDL in women was lower than that of men, but there was no significant difference between them, which in fact, did not show significant statistical relationship with gender.^[11] In the study, Gholipour and Tabrizi BMI in the men's group were more than normal, which is why the cause of obesity among men in the university is to make women more beautiful than men.^[12] In the study of Ziaee *et al.*, overweight and obesity among medical students in men have been reported more than women.^[8] In the

Table 1: Comparison of risk factors in male and female nurses

P	Man	Woman	Risk factor	Test	P
0.118	38	119	Fast food >1-2	Mann-Whitney U	Z=-1.566
0.001	36	131	Breakfast (sometimes)		Z=-13.395
0.001	22	104	Family Hx	K2	Value=1.875
0.53	37 (6)	134 (32)	Tea black		Value=1.216
0.53	6	32	Camelia		
0.074	13	65	Vegetable <1		Value=5.209
0.031	24	70	Fruit <1		Value=6.921
0.209	46	167	Fish <500 g		Value=3.130
0.122	138.34 (28.63)	138.77 (34.38)	Cholesterol	Independent t-test	T=0.083, F=2.401
0.341	111.21 (86.09)	98.6571 (62.91)	TG		T=-1.198, F=0.911
0.77	71.8491 (9.88)	73.1952 (13.37)	FBS		T=0.686, F=0.086
0.048	40.01 (9.33)	42.83 (10.64)	HDL		T=1.764, F=3.938
0.79	71.20 (16.82)	70.50 (17.12)	LDL		T=-0.266, F=0.149
0.318	11.04 (12.71)	106.06 (11.53)	Systole		T=-2.396, F=1.001
0.127	73.18 (11.08)	69.51 (9.53)	Diastole		T=-2.424, F=2.347
0.039	25.33 (4.70)	24.64 (3.73)	BMI		T=-1.145, F=4.322
0.001	0.85 (0.16)	0.82 (0.07)	WHR		T=-2.142, F=11.579
0.038	0.51 (0.09)	0.5231 (0.06)	WSR		T=0.572, F=4.344
0.709	1.12 (1.07)	1.06 (1.99)	Framingham		T=-0.191, F=0.139

TG=Triglyceride, LDL=Low-density cholesterol, HDL=High-density cholesterol, BMI=Body mass index, WHR=Waist-to-hip ratio, WSR=Waist-to-stature ratio

study of Jahromi *et al.*, The mean of WHR in men was significantly higher than in women, which indicates that there is a lack of central obesity, which is consistent with the present study.^[1] Katzmarzyk *et al.* found that fat percentage, body mass index, and waist-to-hip ratio had a meaningful relationship with all risk factors for cardiovascular disease in men with obesity and prediction of cardiovascular risk factors.^[13]

Ethical consideration

This article is the result of a research project approved by Jahrom University of Medical Sciences (Jums.HSR.5/96). The researcher after was introducing to the hospitals of Jahrom University of Medical Sciences of research and obtaining written consent from nurses and units and explaining the purpose full respect for the principles of ethics and trust in the use of all resources and accurate publication of results research.

Conclusion

The results of the study showed that men are more at risk than women for cardiovascular disease and complications. Therefore, according to the results, managers in the field of healthcare to prevent cardiovascular disease in men, especially those who work in high-risk environments, put forward first-level preventive programs. Extensive and extensive educational interventions to raise awareness, change attitudes, behaviors and behaviors about lifestyle and prevent interventions to change lifestyle and preliminary and primary prevention of this disease should be addressed by community health officials.

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Conflicts of interest

There are no conflicts of interest.

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