Journal of Inonu University Health Services Vocational School
İnönü Üniversitesi Sağlık Hizmetleri Meslek Yüksekokulu Dergisi

e-ISSN: 2147-7892 Volume 13, Issue 2 (2025) 281-293 doi: 10.33715/inonusaglik.1569050

Research Article

DETERMINATION OF CARDIOVASCULAR DISEASE RISK FACTORS KNOWLEDGE LEVEL IN UNIVERSITY EMPLOYEES

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Article Info

Received: *18 October 2024*
Accepted: *21 March 2025*

Keywords

Cardiovascular disease,
Knowledge,
Nursing,
Risk factors

ABSTRACT

This study aims to determine the cardiovascular disease risk factors knowledge level in adults working at a university. The study is cross-sectional and the study sample consisted of 250 participants. The study was conducted between February 2023 and September 2023. Introductory Information Form, Nutrition Questionnaire, and Cardiovascular Disease Risk Factors Knowledge Level Scale were used as data collection tools within the scope of the study. 50% of the participants were academic staff, the average age was 36.2±7.1, and the participants received 18.81±4.32 points from the Cardiovascular Disease Risk Factors Knowledge Level Scale in total. The average score of the academic staff was higher. 20% of the participants had a family member diagnosed with cardiovascular disease. The difference in the total score average of the Cardiovascular Disease Risk Factors Knowledge Level scale according to the level of education, income level, smoking, and being a family health worker was statistically significant. The participants' knowledge about cardiovascular disease risk was at a moderate level. To increase the population's knowledge level regarding cardiovascular risk factors with necessary educational programs is recommended.

INTRODUCTION

Cardiovascular diseases (CVD) are the most common and deadly global public health problem (Çakıroğlu, 2023). Being one of the top health problems in the world, CVDs are among the biggest causes of all deaths worldwide (44%) (WHO, 2019). According to the Turkish Statistical Institute (TUIK) data, circulatory system diseases were shown to cause 42.4% of the reported deaths (TUIK, 2024). According to the 2021 National Disease Burden data in our country, it is emphasized that ischemic heart diseases are among the top causes of death, and their prevalence will increase over time (Ministry of Health, 2023).

Cardiovascular disease includes all heart and blood vessel disorders, coronary heart disease (CHD), cerebrovascular diseases, and rheumatic heart disease (WHO, 2023). Atherosclerosis is an essential factor in the formation of all these diseases. Therefore, Cardiovascular diseases are divided into non-atherosclerotic heart diseases and atherosclerotic heart diseases (Dülek, Vural, and Gönenç, 2018). Atherosclerosis has a symptomless, insidious

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How to cite this article: Yalçın, G. A. & Yıldırım, N. (2025). Determination of Cardiovascular Disease Risk Factors Knowledge Level in University Employees. *İnönü Üniversitesi Sağlık Hizmetleri Meslek Yüksekokulu Dergisi*, 13(2), 281-293. doi: 10.33715/inonusaglik.1569050

progression (Kültürsay, 2011). The symptoms appearance indicates the disease to be in an advanced stage. There exists many causative factors for atherosclerosis. While; age, gender, and genetics are unchangeable risk factors, hypertension (HT), diabetes mellitus (DM), hyperlipidemia, smoking, lack of physical activity, excessive salt consumption, alcohol consumption, unhealthy diet, and obesity are modifiable risk factors (Doğru, Utli, Karaman, 2021; Visseren et al., 2021). Other important risk factors are stress and sedentary lifestyle. The World Health Organization states that three-quarters of all CVD deaths can be prevented with adequate changes in lifestyle. Identifying risk groups in society is an effective way to prevent cardiovascular disease and reduce costs (WHO, 2023; Wang and Zhang, 2024).

Determining cardiovascular risk factors in individuals and creating awareness about them is essential. Health professionals should evaluate risk groups and emphasize awareness programs for individuals and society about cardiovascular diseases (Dülek et al., 2018). Awareness programs can help individuals gain healthy lifestyle behaviors and direct them to treatment when necessary (Lloyd-Jones et al., 2010). The aim of preventing cardiovascular diseases is to reduce surgical interventions, increase quality of life, and avoid damage that may occur from heart diseases. Identifying high-risk individuals in society is very important in preventing cardiovascular diseases, reducing treatment costs, and preventing loss of labor (TKD, 2015). The extent to which people know about the risk factors for cardiovascular disease is generally related to how conscious they are. Knowledge about essential risk factors such as hypertension, dyslipidemia, and smoking is generally more common (Consortium, 2023).

Primary prevention of cardiovascular diseases is essential for public health. Nurses are critical in implementing screening programs for risk factors, identifying risk factors early, taking adequate health history, and directing patients to treatment and rehabilitation. (Berra, Miller and Jennings, 2011; Uysal, Enç, Cenal, Karaman and Topuz, 2015; Enç and Alkan, 2017).

Based on these information, the study aims to determine the knowledge level regarding cardiovascular disease risk factors in adults working at university.

MATERIAL AND METHOD

Type of Research

This research was conducted as descriptive and cross-sectional.

Place and Time of Research

This research was conducted at a university between February 2023 and September 2023.

The Universe and Sample of the Research

The total number of personnel in a university was accepted as the universe. The universe size was N: 568 personnel. Considering this number, the research sample was calculated with a 95% confidence interval and a 5% margin of error with a sample size of 231 personnel. In the study, 250 volunteers who agreed to participate were reached face to face with the improbable sampling method.

Data Collection Tools

Three forms were used as data collection tools: An Introductory Information Form, a Nutrition Questionnaire, and a Cardiovascular Disease Risk Factors Knowledge Level Scale (KARRIF-BD).

Introductory information form: The form, prepared based on literature sources, includes 16 questions regarding individuals' age, education level, occupation, social security, family type, cigarette consumption, genetic factor status, smoking, alcohol use, and physical activity (Thanavaro, Moore, Anthony, Narsavage and Delicath, 2006; WHO, 2023; Wang and Zihang, 2024).

Nutrition questionnaire: This form, created in light of the literature, includes seven questions regarding fruit, vegetable, red meat and fish consumption, salt, and the type of oil used (Choudhury, Das, Koner, Ghosh and Singh, 2024; Lu, Jing, Qian, Fan and Cheng, 2024).

Cardiovascular disease risk factors knowledge level scale (KARRIF-BD): The scale was formed and the validity and reliability of the scale was done by Arıkan et al. (2009). There are 28 items on the scale, and six questions (11,12,16,17,24,26) are reverse-scored. The knowledge level increases as the total score obtained from the scale increases. Participants can answer the items in the scale as “Yes,” “No,” or “I don’t know.” Correct answers are calculated as ‘1’ point. The statement “I don’t know” is always considered wrong. The Cronbach alpha value of the scale is 0.76 (Arıkan, Metintaş, Kalyoncu and Yıldız, 2009). In this study, the Cronbach alpha value was found to be 0.775.

Ethical Aspect of the Research

The study was conducted by the principles of the Declaration of Helsinki, and to conduct the study, ethics committee approval was obtained from the Erzurum Technical University ethics committee with decision number 18 dated 29.12.2022. Institutional permission was obtained from the University General Secretariat, and a written voluntary consent form was obtained from the participants.

Data Analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS) for Windows 22 package program. The data's compliance with the normality assumption was calculated using the "Kurtosis" and "Skewness" coefficients (±2). The Independent Groups t-test was used to compare multiple groups in comparing paired groups. In variance analysis and advanced analysis, LSD was used when variances were homogeneous and Dunnet C when they were not.

Limitations of the Study

The fact that the study was conducted on personnel working at one university can be considered a limitation.

RESULTS

76.8% of the participants were 40 or older, 63.2% were male, and 70% were married. 66.4% of the participants were graduates of MA/DR, 82% lived in a nuclear family, 52.8% had an income equal to their expenses, 88.4% did not have a chronic disease.

Table 1. Some Health Behaviors and Family Characteristics of the Participants

		n	%
Individuals Diagnosed with Cardiovascular Disease in the Family	Yes	50	20,0
	No	200	80,0
Smoking Status	Yes	76	30,4
	No	174	69,6
Alcohol Use	Yes	9	3,6
	No	241	96,4
Physical Activity Status	Never	13	5,2
	Rarely	59	23,6
	Sometimes	115	46,0
	Frequently	53	21,2
	Always	10	4,0
Healthcare Worker in the Family	Yes	72	28,8
	No	178	71,2
Place Where Health Information Was Learned	Healthcare personnel	122	48,8
	Newspaper	5	2,0
	Internet	123	49,2
Total		250	100

20% of the participants had a family member diagnosed with CVD, and 37.93% of those diagnosed with CVD had HT. 69.6% of the participants did not smoke, 96.4% did not drink alcohol, 46% sometimes made physical activity, 71.2% did not have a health worker in their family, and 49.2% preferred to learn health-related information from the Internet (Table 1).

Table 2. Distribution of Scores Obtained from the Cardiovascular Disease Risk Factors Knowledge Level Scale

Scale and Subscales	n	Min.	Max.	Mean	SS.
Cardiovascular Disease Risk Factors Knowledge Level	250	5,00	27,00	18,81	4,32

As shown in Table 2, the participants received a total score of 18.81±4.32 from the Cardiovascular Disease Risk Factors Knowledge Level Scale.

Table 3. Comparison of Cardiovascular Disease Risk Factors Knowledge Level Scale Scores According to Nutritional Characteristics

			Cardiovascular Disease Risk Factors Knowledge Level				
		n	%	Mean	SS.	Test	p
Salt Consumption Type	Unsalted	13	5,2	19,15	4,14	F=0,082	0,921
	Low salt	168	67,2	18,84	4,38		
	Salty	69	27,6	18,67	4,27		
Adding Salt Without Tasting	Yes	20	8,0	18,45	4,67	t=-0,386	0,700
	No	230	92,0	18,84	4,30		
Fat Consumption Type	Olive oil	76	30,4	20,39	3,84	F=8,295	**0,000**
	Vegetable oil	40	16,0	18,70	4,35		
	Butter	134	53,6	17,94	4,35		
Fruit Consumption Frequency	1 or Less per Day	191	76,4	18,54	4,41	F=1,694	0,186
	2-3 per Day	51	20,4	19,57	3,84		
	More than 3 per Day	8	3,2	20,38	4,69		
Vegetable Consumption Frequency	1 Serving Per Day	210	84,0	18,77	4,32	F=0,305	0,738
	2-3 Servings Per Day	34	13,6	18,82	4,43		
	3 Servings Per Day Is More	6	2,4	20,17	4,12		
Frequency of Fish Consumption	Never	227	90,8	18,76	4,36	t=-0,577	0,564
	Once a Week	23	9,2	19,30	3,98		
Frequency of Red Meat Consumption	Never	28	11,2	20,36	3,88	F=2,765	0,065
	1-2 Times a Week	153	61,2	18,84	4,35		
	More than 3 Times a Week	69	27,6	18,10	4,31		

As seen in Table 3, 67.2% of the participants had a low-salt diet, 92% did not add salt without tasting the food, 53.6% consumed butter, 76.4% consumed one fruit or less daily, and 84% consumed one plate of vegetables per day. 90.8% of the participants did not eat fish, and 61.2% consumed red meat 1-2 times per week. The difference in the total score average of the Cardiovascular Disease Risk Factors Knowledge Level scale according to the type of fat consumption is statistically significant ($p<0.05$). In the advanced analysis (LSD) conducted to determine which group the difference originated from, it was determined that the scores of those consuming olive oil were higher than those consuming vegetable oil and butter.

Table 4. Comparison of Cardiovascular Disease Risk Factors Knowledge Level Scale Scores According to Demographic Characteristics

			Cardiovascular Disease Risk Factors Knowledge Level			
		n	**Mean**	**SS.**	**Test**	**P**
Gender	Female	92	19,42	4,30	t=1,726	0,086
	Male	158	18,45	4,30		
Marital Status	Married	175	19,07	4,39	t=1,460	0,146
	Single	75	18,20	4,12		
Education Level	High School	14	17,43	4,18	F=3,963	**0,009**
	Associate degree	13	18,62	3,59		
	Bachelor's degree	57	17,35	3,68		
	Master's degree/ doctorate	166	19,44	4,47		
Family Type	Nuclear	205	18,73	4,40	F=2,370	0,096
	Extended family	38	18,61	4,00		
	Single parent	7	22,29	2,06		
Personnel Type	Academic	125	19,80	4,27	t=3,722	**0,000**
	Administrative	125	17,80	4,15		
Income Level	My income is less than my expenses	53	17,13	4,96	t=7,673	**0,001**
	My income is more than my expenses	65	20,18	3,10		
	My income is equal to my expenses	132	18,80	4,35		
Chronic Disease	Yes	29	17,90	4,92	t=1,209	0,228
	No	221	18,93	4,23		
Individuals diagnosed with Cardiovascular Disease in the Family	Yes	50	19,78	4,19	t=1,786	0,075
	No	200	18,57	4,33		
Smoking	Yes	76	17,84	4,96	t=2,159	**0,033**
	No	174	19,23	3,96		
Alcohol Use	Yes	9	16,00	6,08	t=1,424	0,191
	No	241	18,91	4,22		
Physical Activity Level	Never	13	17,69	6,93	F=0,630	0,641
	Rarely	59	18,36	4,66		
	Sometimes	115	19,07	4,11		
	Frequently	53	19,15	3,74		
	Always	10	18,10	3,45		
Having a Healthcare Worker in the Family	Yes	72	19,82	4,53	t=2,375	**0,018**
	No	178	18,40	4,18		
Place Where Health Information Was Learned	Healthcare personnel	122	19,11	4,42	F=0,581	0,560
	Newspaper	5	18,20	2,49		
	Internet	123	18,54	4,29		

As seen in Table 4, the difference in the total mean score of the Cardiovascular Disease Risk Factors Knowledge Level scale according to the level of education, type of personnel, income level, smoking, and being a family health worker is statistically significant ($p<0.05$).

DISCUSSION

To know cardiovascular risk factors plays a vital role in preventing cardiovascular diseases and positively affecting lifestyle habits for cardiovascular diseases. The KARRİF-BD

scale proposed to measure cardiovascular risk factors was used in our study. In the evaluation made on the KARRİF-BD scale, employees received 18.81±4.32 points, which shows that their knowledge level regarding CVD risk factors is moderate. Regarding KARRİF-BD scale studies conducted on different groups, in Andsoy et al.'s study with 300 adult individuals, the average scale score was found to be 21.34 ± 4.00 (Andsoy, Taştan, Iyigun and Kopp, 2015). It can be said that these averages are at a high level. In another study, Tan et al. examined the knowledge levels of women living in rural areas about cardiovascular disease risk factors, and the average scale score was found to be 13.05 ± 6.93 (Tan, Dayapoğlu, Şahin, Cürcani, and Polat 2013). In a study conducted by Uysal et al. on students, the average scale score was 17.1±4.37 in students in the faculty of literature and 21.8 ± 4.37 in nursing students (Uysal et al., 2013). The mean scale score that Badir and his colleagues calculated in their study with undergraduate nursing students was 22.47 ± 3.38 (Badir, Tekkas, and Topcu, 2015). Essential data on how the mean KARRİF-BD scale scores vary among different individuals and groups are available in the literature. The mean score in office workers was 19.23±3.03 (Balcı, Kolaç, Şahinkaya, Yılmaz and Nirgiz 2018), the mean score in the cardiovascular disease risk factors knowledge level scale in the university student group was 19.5 ± 4.6 (Oğuz, Erguvan, Ünal, Bayrak and Çamcı, 2019), the total mean score in adults was 20.18 ± 4.48 (Çoşkun, 2024), 18.65±4.04 in metal sector workers (Gürdoğan, Arı, Ertürk, Genç and Uçar, 2015) and the mean total KARRİF-BD score of the academic staff was 20.23± 3.49 (Arslan and Akça, 2020). Considering that the maximum score on the scale is 28, we can say that the level of knowledge about cardiovascular disease risk factors is generally at moderate levels, similar to our study. On the other hand, we believe that the knowledge level of women about cardiovascular disease risk factors was determined to be low because Tan and his colleagues conducted the study only in rural areas. Although it is taken into account that the sample of similar studies consists of various individuals, when we look at the results, we can say that the knowledge level is not as high as desired. The results of the studies show that it is essential to increase the knowledge level regarding the risks of cardiovascular diseases.

Our study found no significant difference between salt, fruit, and vegetable consumption, and fish and red meat consumption with KARRİF-BD scores. Still, an important difference was found in the type of fat consumption. Adequate and balanced nutrition should include healthy fatty acid intake while keeping cholesterol balanced. The Mediterranean diet and the Japanese diet offer various advantages in this respect. Implementing these diets has the potential to reduce the risk of chronic diseases such as heart disease, diabetes, and some types of cancer (Jabbari et al., 2024). In our study, where the main headings of these healthy diets were

questioned, 27.6% of the participants stated that they ate salty food, and 8.0% indicated that they added salt to the food on their plates without tasting it. The TEKHARF study from our country determined that approximately 20% of the people added salt to the food without tasting it (Ünal, Ergör, Horasan, Kalaça and Sözmen, 2013). We see that these data are not compatible with the data of our study; the group we worked with can be evaluated as more conscious about salt use. When the participants were questioned about the type of oil they used, 53.6% stated that they used butter, and 30.4% indicated that they used olive oil. In the TEKHARF study data, the rate of olive oil use in our country was determined to be 27.1%, and butter usage to be 7.1% (Ünal et al., 2013). The fact that the study was conducted in the sample group living in the Eastern Anatolia Region can be interpreted as a reason for butter consumption to be ranked first, unlike the rest of the country. Gan et al.'s 2015 meta-analysis study shows that daily fruit and vegetable consumption reduces the risk of cardiovascular disease. This is an important finding that emphasizes the importance of vegetables and fruits in nutrition. In our study, 23.6% of people consumed 2-3 servings of fruit and vegetables daily, and we believe that awareness of this issue should be increased. The meta-analysis study conducted by Zang et al. in 2020 reported that fish consumption reduces the risk of cardiovascular disease. In our study, fish consumption was found to be at very low rates, but it is seen that the participants preferred to consume red meat. In a study conducted by Al Sahaar et al. 2020 on red meat consumption and cardiovascular disease risk, red meat was quite risky for cardiovascular diseases. Although individuals' education level and economic status are favorable, their negative nutritional behaviors indicate low awareness. We believe that it would be essential to increase the understanding of the participants in our study about nutrition and provide training to make local dishes healthy.

The analyses in our study revealed that the scores obtained from the scale showed significant differences according to demographic variables such as the participant's level of education, being an academic or administrative staff, income level, smoking, and having a health worker in the family. Zengin's study results showed that as the level of education increased, the participants became more knowledgeable about CVD (Zengin, 2019). In the study by Tan and colleagues, which included women in rural areas, it was found that the level of education increased, and the participants were more knowledgeable about cardiovascular diseases (Tan et al., 2013). Various studies have indicated a positive relationship between the level of education and having more knowledge about cardiovascular disease risk factors (Mosca, Ferris, Fabunmi, and Robertson, 2004; Al Hamarneh, Crealey, and McElnay, 2011; Awad and Al-Nafisi, 2014; Mosca et al., 2006). According to the research of Uçar and Arslan,

it was concluded that individuals with lower levels of education are more aware of the causes and risk factors of cardiovascular diseases than those with higher levels of education (Uçar and Arslan, 2017). In our study, it is expected that the average KARRİF-BD scores will be higher because the academic staff is more educated.

Our study found a significant difference between the KARRİF-BD score according to income level. According to the results of the survey by Örs and Tümer, which is another similar study in the literature, it was seen that working women with high-income levels were more aware of cardiovascular disease risk factors (Örs & Tümer, 2020). A study conducted in a hospital in Pakistan also showed that individuals with higher income levels had more knowledge about CVD (Jafary et al., 2005). There are conflicting findings in the literature about the effect of income level and employment status on the health knowledge level of individuals. In their study, Awad and Al-Nafisi did not find a significant relationship between income level and CVD knowledge (Awad and Al-Nafisi, 2014). The fact that conflicting results were obtained in the studies on this subject suggests that different socioeconomic and cultural factors play a role.

Our study found a significant difference between the KARRIF-BD scores of non-smokers. 69.6 of the individuals participating in the study did not smoke. In a study conducted by Uçar and Arslan on 121 individuals who smoked and did not smoke in a family health center, it was determined that smoking did not have a significant effect on KARRIF-BD (Uçar and Arslan, 2017). Sarıhan's study found no relationship between smoking and KARRIF-BD scale scores (Sarıhan, 2024). In the study conducted by Gürdoğan and his colleagues, no significant relationship was found between individuals' knowledge levels and smoking habits (Gürdoğan et al., 2015). Similar to the literature, the KARRIF-BD mean score of non-smokers in our study was higher than that of smokers. It can be thought that non-smokers adopt more healthy lifestyle behaviors. Another study in the literature reported that as knowledge of CVD risk factors increases in women, behaviors towards a healthy lifestyle also increase. This result supports the findings in our study (Thanavaro et al., 2006). Our study determined that having a health worker in the family significantly affected the KARRIF-BD score. In their research, Yılmaz and Boylu (2016) determined differences in knowledge and attitudes about health issues between health workers and other professional groups. This finding may be because health workers have more knowledge and experience in health-related problems due to their education and profession. Health workers conveying this information to their families may increase awareness of CVD risk factors. This situation shows that health workers can take a more proactive approach to

health issues related to their own families. Such awareness and information transfer can improve the health level of individuals and society.

The most effective strategy for preventing cardiovascular diseases is to adopt a healthy lifestyle and maintain these behaviors in the long term (Karakoç Kumsar & Taşkın Yılmaz, 2017). The active role of nurses in combating cardiovascular diseases is vital in improving the quality of health services and reducing the effects of these diseases. Nurses can undertake many tasks, such as monitoring patients' health, providing education, implementing preventive health services, and actively participating in treatment processes. As a result, the role of nurses in combating cardiovascular diseases is multidimensional and critical. It is possible to reduce the effects of these diseases with the cooperation of all health professionals. Conducting the study on a limited sample may cause the results to be insufficient to represent the general population.

CONCLUSION AND RECOMMENDATIONS

Participants' knowledge of cardiovascular disease risk was at a moderate level. Participants' awareness levels about risk factors important for heart health are limited. Comprehensive education programs should be organized to provide individuals to have more information about cardiovascular disease risks, support for lifestyle changes, nutrition and exercise programs should be created, regular health checks should be performed, and cardiovascular risk assessment and counseling services should be strengthened in universities. These services should be expanded in public institutions such as universities and for their employees.

Note: This study was produced from a master's thesis.

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