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# The priority order of risk factors for coronary artery disease with respect to gender-based differences

## *Koroner arter hastalığı risk faktörlerinin önem sıralamasında cinsiyete göre farklılıklar*

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## ABSTRACT

**Aim:** To investigate the distribution of risk factors in coronary artery disease (CAD) patients diagnosed by coronary angiography and to determine the order of importance according to gender.

**Materials and Methods:** A total of 326 men, 118 women; whose CAD was documented by coronary angiography were included in this study. Age, gender, socioeconomic status, family history, physical inactivity, smoking, hypertension (HT), diabetes (DM), hyperlipidemia (HL), obesity, depression and anxiety were questioned as risk factors for the development of CAD. The patients' risk status was evaluated using a questionnaire and K.U.N.G. (M.I.N.I.), International Neuro-psychiatric (Brief) Interview scale, Physical Activity Questionnaire short form (IPAQ-s) and Trait Anxiety Scale. Descriptive analyses, chi-square test were used for statistical evaluations.

**Results:** In men, top three proven risk factors were age, physical inactivity, HT; 58.9%, 92.9% and 60.1% respectively; while in women, the same three risk factors were 87.3% HT, 85.6% age, and 84.7% physical inactivity. While smoking alone was significantly higher in men, the frequency of physical inactivity, family history, HT, DM, HL, and obesity were significantly higher in women. When proven and probable risk factors were evaluated together, it was observed that ranking was different between genders.

**Conclusion:** CAD is multifactorial in terms of risks for men and women; however, the ranking of risk factors differs. For prevention of the disease and disease caused mortality; both personal care and national programs should be prepared; without ignoring these differences, will make important contribution. However, it's crucial to carry out further studies to confirm the potential risk factors alongside the established risks.

**Keywords**: Risk factors, CAD, men, women

## ÖZ

***Amaç:*** *Koroner anjiyografi ile tanı konulan Koroner Arter Hastalığı (KAH) hastalarında risk faktörlerinin dağılımını araştırmak ve cinsiyete göre önem sırasını belirlemektir.*

***Gereç ve Yöntemler:*** *Koroner anjiyografiyle KAH varlığı belgelenen 326'sı erkek, 118'i kadın hasta çalışmaya dahil edilmiştir. Çalışmada KAH'nin gelişimindeki risk faktörlerinden sadece yaş, cinsiyet, sosyoekonomik durum, aile öyküsü, fiziksel inaktivite, sigara kullanımı, hipertansiyon (HT), diyabet (DM), hiperlipidemi (HL), obezite, depresyon ve anksiyete sorgulanmıştır. Hastaların risk durumları; anket, K.U.N.G. (M.I.N.I.) Uluslararası Nöro-psikiyatrik (Kısa) Görüşme ölçeği, Fiziksel Aktivite Anketinin kısa formu (IPAQ-s) ve Sürekli Kaygı Ölçeğiyle değerlendirilmiştir.*

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*Tanımlayıcı analizler ve Ki-kare testi ile istatiksel değerlendirmeler yapılmıştır.*

***Bulgular**: Erkekte kanıtlanmış risk faktörü sıralamasında ilk üç sırada yaş (%92,9), fiziksel inaktivite (%60,1) ve HT (%58,9); kadında ise aynı üç risk faktörü %87,3 HT, %85,6 yaş, %84,7 oranında fiziksel inaktivite saptanmıştır. Erkeklerde tek başına sigara kullanımı anlamlı derecede yüksek iken, kadınlarda fiziksel inaktivite, aile öyküsü, HT, DM, HL ve obezitenin sıklığının anlamlı olarak daha yüksek olduğu belirlenmiştir. Kanıtlanmış ve olası risk faktörleri birlikte değerlendirildiğinde, iki cinsiyet arasındaki sıralamanın farklılık gösterdiği gözlemlenmiştir.*

***Sonuç:** KAH kadın ve erkekler için riskler yönüyle multifaktöriyeldir; ancak risk faktörü sıralaması farklılıklar içermektedir. Hastalığa ve buna sekonder mortalitenin önlenmesinde; hem kişisel bakımın hem ulusal programların bu farklılıkların göz ardı edilmeden yapılması önemli bir katkı sağlayacaktır. Bununla birlikte; kanıtlanmış risklerle birlikte; olası risk faktörlerinin de kanıtlanabilmesi için yeni çalışmaların yapılması önemlidir.*

***Anahtar Sözcükler:** Risk faktörleri, KAH, erkek, kadın*

## INTRODUCTION

Recently 43 million people loose their lifes due to chronic diseases (non-communicable diseases, NCDs), which have a significant share in global mortality statistics (1). In Türkiye 33.4% of deaths are caused by circulatory system diseases and 14% by cancers (2). Cardiovascular diseases are preventable diseases since a significant portion of the risk factors involved in the occurrence of cardiovascular diseases are controlled (modifiable). The fight against modifiable risk factors, especially smoking, HT and obesity, which are the three most common risk factors in our country, is critical in preventing these diseases. World Health Organization (WHO) reports that prevention of obesity, HT, HL and smoking can reduce the occurrence of cardiovascular diseases by 50% (3). It is a very important opportunity to identify undiagnosed patients during their admission to primary care for various reasons. CAD could be detected at different times according to gender,also its course and outcomes may be different (4,5).

The different effects and varying frequencies of risk factors in men and women are believed to play a role in this regard. Classic risk factors include being men, a family history of coronary heart disease at an early age, HL, age, physical inactivity, HT, DM, smoking, and obesity. However, in some patients, known risk factors are either rarely observed or completely absent, suggesting that other risk factors may also contribute to etiology. Potential contributing risk factors considered in the study include employment status, depression, socioeconomic status, educational status and anxiety. These factors were assessed in the study.

The aim of the research was to determine the distribution of risk factors in patients with confirmed coronary artery disease and to establish the importance of these risks in different genders. Additionally, the study sought to examine whether comorbidities, as well as socioeconomic, anthropometric, and clinical characteristics, show gender-based differences that may negatively affect disease prognosis.

## MATERIALS AND METHODS

This cross-sectional study was conducted in 444 patients who were admitted to the Cardiology Department of Dokuz Eylül University Faculty of Medicine with suspicion of CAD and who were found to have coronary artery disease by coronary angiography. Ethical approval of the study was obtained from Dokuz Eylul University Faculty of Medicine, Clinical and Laboratory Research Ethics Committee. Patients who were unconscious, uncooperative and disoriented, had dementia-like cognitive dysfunction, did not speak Turkish, had a general condition disorder (as scales could not be administered/measurements could not be performed) and were not willing to participate were excluded from the study. Consents of the patients were obtained through voluntary information forms.

The Framingham Heart Study, The Coronary Heart Disease Prevention Treatment Guidelines, and The American National Cholesterol Education Plan Adult Treatment Panel III were taken as basis for defining the risk factors of CAD. In this study, gender, socioeconomic status, DM, obesity, age, HL, being physically inactive, smoking, HT, family history, depression and anxiety were questioned as independent variables. Age of risk was defined as ≥45 years for men and ≥55 years for women. Socioeconomic status was determined based on

educational status (school graduated from), income level (minimum wage and its multiples) and the employment status. The World Health Organization's BMI ≥30 kg/m² limit was used for obesity. For family history of premature CAD, the presence of premature CAD development before the age of 55 years in the father or other first-degree men relatives and before the age of 65 years in the mother/other first-degree women relatives was questioned. The presence of type 2 DM was assessed according to having a diagnosis of DM and/or receiving treatment, and HT status was assessed according to having a diagnosis and/or receiving treatment. For HL, the presence of a diagnosis and/or receiving treatment was questioned. Smoking was defined as the patient's current smoking status. K.U.N.G. (M.I.N.I.) assessment tool (A, A', B sections-5 items) for depression assessment, STAI Form 2 (20 items) for anxiety assessment, IPAQ-s (7 items) for physical activity assessment were used. All scales have Turkish validity and reliability (6,7,8). The scores obtained from the STAI Form 2 Scale were reported as 20-39 low anxiety, 40-59 moderate anxiety, 60-80 high anxiety (9). IPAQ-s gives an idea of the time spent in walking, moderate or vigorous activities. This is, on average, the ratio of the metabolic rate of a given activity to the resting metabolic rate for a person. Classification; Category 1- MET Inactive: Conditions other than Category 2 or 3. Category 2-MET Minimally Active (Those who meet any of the 3 criteria: (a) ≥3 days of vigorous activity, minimum 20 min/day, or, (b) ≥5 days of moderate vigorous activity/walking, minimum 30 min/day, or, (c) ≥5 days of a combination of walking, moderate vigorous or vigorous activity that achieves a minimum of 600 MET-min/week Category 3 -MET Very Active a) A minimum of 3 days of vigorous activity providing a minimum of 1500 MET-min/week, or b) ≥7 days of walking, moderate or vigorous activity providing a minimum of 3000 MET-min/week (7). The data collection form, which was applied to the inpatients by the researcher with face-to-face interview technique, consisted of a total of 46 questions; data collection took approximately 25 minutes.

### Statistical analysis

The data was entered and analyzed using SPSS 15.0 statistical program. Frequency distributions and averages were used in descriptive analyses. The distribution of each risk parameter was investigated separately in men and women and the Chi-Square test was used to determine the significance of the difference between the groups. A p value< 0.05 was considered statistically significant. Odds ratio and confidence intervals were calculated using logistic regression analysis for the differences in risks between genders. In the analysis, crude (unadjusted) odds ratios were calculated in the first model and adjusted for age in model 2. The Odds ratios presented indicate an increased prevalence of the relevant risk factor (e.g. DM, obesity, HL, HT) in women compared to men. For example, in the model for detecting increased prevalence of DM, age and gender are independent variables, while having DM is the dependent variable. In the analysis, the reference group for the gender variable is men. In the age adjustment, the reference group was 45 years of age and below. In the regression, the Enter method, which adds both independent variables to the model at the same time, was used. Eleven regression analyses were performed in the models by age. Family history and HL were not included in the regression analysis since there was no significant difference between genders. In addition to descriptive and hypothesis analyses, logistic regression analysis was performed.

## RESULTS

Among CAD patients, 73.4% were men and 26.4% were women. Among men, 47.5% had family history, 38.3% had smoking, 57.2% had physical inactivity, 71.4% had obesity, 27.3% had DM, 58.9% had HT and 46% had HL. In women, 49.2% had family history, 14.4% had smoking, 77.5% had physical inactivity, 72% had obesity, 40.7% had DM and 87.3% had HT, and 46.6% had HL as risk factors. While smoking alone was significantly higher in men, the frequency of physical inactivity and family history, DM, HT, HL, obesity was significantly higher in women. The distribution of definite and possible risk factors for CAD according to gender and the results of chi-square test analysis are shown in (Table- 1).

**Table- 1.** The distribution of definite and possible risk factors for CAD according to gender

| **Definite risk factors for CAD** | Men<br>n (%) | Women<br>n (%) | $\chi^2$ | p |
|---|---|---|---|---|
| **Age** | | | | |
| <45 | 23(7.1) | 5(4.2) | | |
| 45-55 | 62 (19) | 15(12.7) | 16.201 | 0.001 |
| 56-69 | 172 (52.8) | 51(43.2) | | |
| >69 | 69 (21.2) | 47(39.8) | | |
| **Family history** | | | | |
| Family history + | 155(47.5) | 58(49.2) | 0.090 | 0.765 |
| Family history - | 171(52.5) | 60(50.8) | | |
| **Cigarette smoking** | | | | |
| Smoker | 125(38.3) | 17(14.4) | 22.820 | <0.001 |
| Nonsmoker | 201(61.7) | 101(85.6) | | |
| **Physical Activity** | | | | |
| Inactive | 147(57.2) | 55(77.5) | 23.631 | <0.001 |
| Minimally active-active | 110(42.8) | 16(22.5) | | |
| **Obesity** | | | | |
| Obese | 212(65.0) | 85 (72.0) | 6.527 | 0.011 |
| Non obese | 114((35.0) | 33(28.0) | | |
| **DM** | | | | |
| DM + | 89(7.3) | 48(40.7) | 7.270 | 0.007 |
| DM - | 237(72.7) | 70(59.3) | | |
| **HT** | | | | |
| HT + | 192(58.9) | 103(87.3) | | |
| HT - | 134 (41.1) | 15(12.7) | 31.324 | <0.001 |
| **HL** | | | | |
| HL + | 150(46.0) | 55(46.6) | 0.012 | 0.911 |
| HL - | 176(56) | 63(53.4) | | |
| **Possible risk factors for CAD** | | | | |
| **Educational status** | | | | |
| Literate +primary school graduate (low-moderate) | 144(44.2) | 89 (75.4) | 33.931 | <0.001 |
| Secondary school+ high school+ university graduate (high) | 182(55.8) | 29 (24.6) | | |
| **Employment status** | | | | |
| Working | 98(30.1) | 6(5.1) | 30.133 | <0.001 |
| Not working | 228(69.9) | 112(94.9) | | |
| **Income status**<br>**Monthly income level (Turkish lira/month)** | | | | |
| Low(≤500TL) | 33(10.1) | 39(33.1) | 41.205 | <0.001 |
| Moderate-High (≥501TL) | 293(89.9) | 79(66.9) | | |
| **Depression** | | | | |
| Present | 178(54.6) | 85 (72.0) | 10.904 | 0.001 |
| Not present | 148(45.4) | 33 (28.0) | | |
| **Anxiety** | | | | |
| Low | 131 (40.2) | 17 (14.4) | 25.906 | <0.001 |
| High | 195 (59.8) | 101 (85.6) | | |

When all risk factors were evaluated together, age in men and being unemployed in women were the leading risks. The order of distribution of all risk factors according to gender is presented in (Table-2).

**Table-2.** Ranking of gender-specific percentages of all risk factors

| Men | | Women | |
|---|---|---|---|
| **Risk factors** | **%** | **Risk factors** | **%** |
| **Obesity*** | 18.4 | **Cigarette smoking*** | 14.4 |
| **DM*** | 27.3 | **Obezity*** | 29.7 |
| **Cigarette smoking*** | 38.3 | **DM*** | 40.7 |
| Educational status (low-moderate) | 44.2 | **HL*** | 46.6 |
| **HL*** | 46.0 | **Family history*** | 49.2 |
| **Family history*** | 47.5 | Income status (high income) | 66.9 |
| Depression (at a time) | 54.6 | Depression (at a time) | 72.0 |
| **HT*** | 58.9 | Educational status ((low-moderate) | 75.4 |
| Anxiety level (high) | 59.8 | **Physical Inactivity*** | 84.7 |
| **Physical Inactivity*** | 60.1 | **Age*** | 85.6 |
| Employment status (not working) | 69.9 | Anxiety level (high) | 85.6 |
| Income status (high income) | 89.9 | **HT*** | 87.3 |
| **Age*** | 92.9 | Employment status (not working) | 94.9 |

* Risk factors written in bold font are in the definite risk factor group of CAD.

The crude and age-adjusted Odds ratios and confidence intervals of the prevalence of risk factors that may adversely affect the post-diagnosis process in patients with coronary artery disease in women compared to men are presented in (Table- 3). According to crude Odds ratios, not working, HT and low income were 7.80, 4.55 and 4.20 times more common in women, respectively, while smoking alone was more common as a risk factor in men (OR=0.28).

**Table-3.** Crude and age-adjusted Odds ratios (95% Confidence Interval) of the prevalence of risk factors that may adversely affect the post-diagnosis process in coronary artery disease patients in women compared to men

| | **Crude - Model 1** | | **Age adjusted-Model 2** | |
|---|---|---|---|---|
| | **OR (%95 GA)** | **p** | **OR (% 95 GA)** | **p** |
| Age –Being over 55 | 1.72 (1.01-2.97) | 0.047 | - | - |
| Education Status – Secondary school or lower | 3.88 (2.42-6.22) | <0.001 | 3.49 (2.16-5.64) | <0.001 |
| Employment status-Not working | 8.02 (3.41-18.89) | <0.001 | 7.80 (3.15-19.29) | <0.001 |
| Income status-Monthly income level-Low(≤500TL) | 4.38 (2.59-7.42) | <0.001 | 4.20 (2.45-7.21) | <0.001 |
| Cigarette smoking | 0.27 (0.16-0.47) | <0.001 | 0.31 (0.17-0.55) | <0.001 |
| Being physically inactive | 3.69 (2.13-6.38) | <0.001 | 3.28 (1.88-5.73) | <0.001 |
| Presence of DM | 1.83 (1.18-2.84) | 0.007 | 1.80 (1.15-2.84) | 0.011 |
| Presence of HT | 4.79 (2.67-8.60) | <0.001 | 4.55 (2.50-8.30) | <0.001 |
| Presence of obesity | 1.87 (1.15-3.03) | 0.011 | 2.22 (1.34-3.68) | 0.002 |
| Having a depressive period at a time | 2.14 (1.36-3.38) | 0.001 | 2.28 (1.43-3.65) | 0.001 |
| Having high anxiety level | 3.99 (2.28-6.98) | <0.001 | 4.08 (2.31-7.20) | <0.001 |

## DISCUSSION

CAD depends on many factors in terms of risk factors in men and women (5,10). The ranking of risk factors for both sexes may vary.

Being of the men gender ranks first in terms of classical risk factors (11,12). The distribution of patients in our study was 73.4% for men and 26.6% for women. It was determined that being of the men sex is an important risk factor for CAD.

Age becomes more important as the prevalence of many risk factors (such as HT) increases with age in both sexes. The risk of CAD starts at age 45 years and above in men and 55 years and above in women (11,12), 92.9% of men patients and 85.6% of women patients were in the age group at proven risk for CAD. These rates are again correlated with the risk age groups in the guidelines. At the same time, it is another result supporting that CAD is less common in women than in men in risky age groups. Age is very important in terms of risk in both men and women; in our study, it ranked first in men and second after HT in women patients.

A family history of CAD was observed with equal frequency in men and women. Although the rates were very close, the majority were in the direction of absence of family history. (48% of patients had a family history of CAD, while 52% had no family history.) Similarly, in the study by Aladağ et al. no family history was found in patients, while the rates were close in both sexes (12). In a study conducted in Denizli in 2023, similarly, the majority of patients had no family history (13).

HT was seen in the first rank with a rate of 87.3% in women patients and in the third rank with a lower rate of 58.9% in men patients. Similarly, in a study by Sönmez et al. in 101 women and 516 men with significant coronary lesions, 60% of women and 60% of men had HT. 516 men patients with significant coronary lesions, HT was found in 60% of women and 37% of men (14). Rich-Edwards et al. found a weaker association between HT and CAD in men than in older women (15,16). With reference to all three studies, it can be said that HT is a leading risk in women. It has been pointed out that HT not only poses a risk for cardiovascular disease (CAD) in our women patients but also poses a more significant risk when it is coexisting with other diseases. In other words, HT not only alone but also in combination with other health problems poses a greater risk of CAD.

In our patients, DM was approximately 1.5 times more common in women and ranked higher than men in the risk factor ranking in accordance with the current literature. Similarly, in the study by Sönmez et al. DM was ranked higher in women, and its frequency was 1.7 times in favor of women (14). DM is considered a risk factor equivalent to CAD and poses a significant threat in terms of susceptibility to cardiovascular diseases, especially for women. However, as a result of the evaluations, this risk factor ranked sixth in terms of importance in our women patients and seventh in our men patients. This may be due to the fact that other comorbid risk factors are more prominently observed.

Smoking is an important health risk factor for our country. According to our national heart health policies, similar to developed countries, in Türkiye, one out of every two men and one out of every five women smokes (3). In developing countries, smoking rates range between 40-60% in men and 2-10% in women. In Türkiye, 33.4% of people aged ≥18 years smoke. This situation emphasizes the negative effects of smoking on public health. The rate of smoking is 50.6% for men and 16.6% for women. According to current data, the proportion of individuals aged 15 and over who use tobacco products was 28.0% in 2019. In 2022, this rate increased slightly and reached 28.3%. As of 2022, the rate of tobacco use among men was 41.3% and 15.5% among women. On the other hand, while the rate of individuals who do not use tobacco products (quitters and never users) was 68.7% in 2019. In 2022, this rate decreased to 68.0%. These data show a small increase in tobacco use rates and a decrease in the proportion of individuals who do not use tobacco products (17). In line with smoking rates in Türkiye, the rate for women is 14.4% and 38.3% for men. The fact that these rates are slightly lower may be due to the fact that the study included patients who underwent angiography because they were thought to have CAD, not the entire population. It is thought that the patients in our study may have quit smoking because of their current complaints. The fact that smoking was not at the top of the list of risk factors may be due to the fact that 93.7% of our patients were aged 45 years and older. Consistent with the data from Türkiye, it was observed that smoking decreased with age.

In women patients with CAD, the rate of physical inactivity reached a very high level of 84.7%, while this rate was 60.1% in men patients. In a 2004 study by Yusuf S et al. it was found that women were more protected from myocardial infarction with physical activity than men (18). This may be one of the reasons for the higher incidence of CAD in physically inactive women patients compared to men patients. According to the results of our study, it can be said that being physically inactive is a more prominent risk factor for women than men.

However, in terms of importance, physical inactivity ranks third in women and second in men.

In men patients, age was by far the most important risk factor with 92.9%, while physical inactivity was 60.1% and significantly lower than age. In women patients, the proportions of risk factors such as HT (87.3%), age (85.6%) and physical inactivity (84.7%) were close to each other and remained at high levels. These similar rates may indicate that risk factors are effective at similar levels in women patients. Physical inactivity is more common in women with CAD. For this reason, it is important to encourage women patients to engage in physical activity, to develop community areas suitable for such activities and to investigate these causes and to implement appropriate activity programs for physical inactivity, considering that comorbid diseases that are more common in women may lead to physical inactivity.

It is noteworthy that the prevalence of the first three risk factors, HT (87.3%), age (85.6%) and physical inactivity (84.7%), were very close to each other in women patients. In men patients, the difference between age (92.9%) and physical inactivity (60.1%) was quite high, indicating a different distribution of risk factors in men. Although CAD is a multifactorial disease for both sexes, it can be said that risk factors interact in a more balanced way in women and this situation is more evident. Similar to other studies conducted in Türkiye, it was observed that high income levels play an important role as a CAD risk factor and this effect is much more distinct for men (ranked 2nd in men and 8th in women) (19).

Depression is more common in women in the general population and was found to be more prevalent in women in our study (72.0% in women and 54.6% in men). Despite this, depression occupied the same position in the ranking of risk factors for both sexes. A review published in 2023 also emphasized that depression is more common in women (20).

The lower education level of women compared to men suggests that low and moderate education levels may constitute a greater risk factor for CAD for women. Among women, this rate was 75.4%. CAD is too complex to be associated with a single risk factor. CAD is multifactorial but is associated with more risk factors in women. Women have more risk factors than men and are usually diagnosed at a later age when CAD is diagnosed (16,20). The reasons for the later diagnosis of CAD in women may include delayed diagnosis because symptoms are more atypical; some risk factors (e.g. HL) become apparent at a later age; and the high-risk age group for women starts about 10 years later than for men. The later onset of menopause may also contribute to this difference (15,20,21,22,23,24,25).

In the CAD population examined in the study, a significant difference was found after adjustment for age in risk parameters that are both effective in the occurrence of the disease and adversely affect the post-diagnosis process in terms of prognosis in women compared to men. Women were more likely to be unemployed, uneducated, poor and inactive. In addition, DM, HT and obesity are more frequently associated with existing CAD. Having a history of depression and having high levels of anxiety were also more common. In men, smoking is the only risk factor for which there is a gender-based difference in prevalence. After adjustment for age, the increased risk for obesity, history of depression and anxiety level is exacerbated in women compared to men. The differences in the ranking of the frequency of risk factors in men and women indicate that gender-based differences in chronic diseases such as CAD have different priorities for both genders in both diagnosis and treatment processes.

**LIMITATIONS**

Although the number of patients in the study was sufficient, the fact that the data were obtained from only one center may lead to some hesitation in generalizing the findings. However, the migration movements in our country and the high number of patients coming to our hospital from various provinces significantly reduce this doubt. Information such as family history, smoking status, income and education levels were determined on the basis of statements and various scales were applied. Although there may be some bias because of the subjective evaluation, it is considered that similar biases will be seen in both groups in comparisons between men and women groups and that this will not have a significant effect on the results.

Blood cholesterol and sugar levels were not measured in the study. The presence of HL or DM was assessed on the basis of self-reports, medications and retrospective patient records. One of the limitations of our study is the absence of a control group; therefore, a comparison between patients and healthy individuals could not

be made. We did not have a control group without CAD because at the time of the study, the number of patients with normal coronary angiography results after the procedure according to the coronary angiography data of the previous months was very low and there were not enough patients to form a control group. Since the absence of coronary artery disease can only be determined by coronary angiography, it was not possible to perform the procedure in patients without indication for coronary angiography and to form a control group. Gender differences in risk factors for CAD have recently been discussed (20). Controlled studies, longitudinal studies, and studies including laboratory data can be conducted in future studies to prevent limitations in the current study. Our study is not recent as it was conducted as a thesis, but the risk factors for CAD do not change frequently and the current literature supports this; age, gender, family history, smoking, alcohol, HL, DM, HT, obesity, and exercise are reported as risk factors (11,13,20,25). Gender differences are similarly consistent with our current study (20,25,26).

## CONCLUSION

The fact that some basic risk factors are observed more frequently in women than in men shows that these risk factors will maintain their importance in the treatment process. Therefore, in approaches to chronic diseases and risk factors, it should not be ignored that both genders have different risk patterns in both preventive services and treatment processes. Carrying out intervention and treatment processes with an approach that takes these differences into account is critical for the provision of family medicine services in primary care.

Physical inactivity ranks second only to age as a definite and preventable risk factor in both sexes. Since age is a risk factor that cannot be intervened; it is important to direct people to physical activity for the prevention of CAD.

Among the unproven risk factors, education level and depression were observed more in our women patients. In this context, increasing the level of education for women may be an incentive tool to reduce the risk of CAD. In addition, family physicians, as health professionals who have first contact with patients and see them on a regular basis, can prevent a risk factor for CAD by early detection and intervention of symptoms of depression.

In conclusion, there are significant differences in the ranking of risk factors between men and women. Consideration of these differences in both individual care and in the preparation of national health programs will make a major contribution to the prevention of CAD and related mortality.

As identification of possible risk factors plays an important role in changing this ranking, further research is needed in this area.

**Conflict of Interest:** The authors have no conflicts of interest to declare.

**Ethics Committee Approval:** The study protocol was approved by the Dokuz Eylul University Faculty of Medicine, Clinical and Laboratory Research Ethics Committee. (Date:12/03/2009 meeting no:06/06/2009, Protocol Number: 49/2009)

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