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DIFERENÇAS DE GÉNERO NUMA AMOSTRA DE PESSOAS COM DOENÇA CARDIACA

GENDER DIFFERENCES IN A SAMPLE OF PEOPLE WITH HEART DISEASE

DIFERENCIAS DE GÉNERO EN UNA MUESTRA DE PERSONAS CON ENFERMEDADES DEL CORAZÓN

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RESUMO

Introdução: Não sendo as doenças cardiovasculares exclusivas do homem nem da mulher, importa conhecer que diferenças existem entre os géneros, uma vez que é um facto que as características físicas e psicossociais que os distinguem, podem influenciar os vários domínios da sua saúde, nomeadamente a saúde cardiovascular.

Objetivos: Identificar diferenças de género numa amostra de pessoas com doença cardíaca.

Métodos: Estudo quantitativo, transversal, que utiliza a análise descritiva e multivariada de dados com recurso à regressão logística.

Resultados: Os dados indicaram que comparativamente com os homens, as mulheres são mais ansiosas *(OR = 2.78; p = 0.018)*, têm baixo controlo percebido *(OR= 3.06; p = 0.008)*, não fumam *(OR = 4.41; p = 0.028)* e não ingerem bebidas alcoólicas *(OR = 5.67; p = 0.000)*.

Conclusões: Os enfermeiros devem consciencializar-se de que as diferenças de género entre o homem e a mulher os fazem diferir no seu risco cardiovascular. Por tal, devem estar sensibilizados para a necessidade de identificar os fatores que o podem influenciar e definir e implementar intervenções capazes de reduzir esse risco para cada género.

Palavras-chave: Género e Saúde; Doenças Cardiovasculares; Fatores de Risco

ABSTRACT

Introduction: Cardiovascular diseases are not unique to either men or women, so that it is important to know what differences exist between the sexes, since it is a fact that the physical and psychosocial problems that distinguish them can influence the various areas of their health, particularly cardiovascular health.

Objectives: To identify gender differences in a sample of people with heart disease.

Methods: A quantitative, cross-sectional study with descriptive and multivariate data analysis using logistic regression.

Results: The data indicated that women are more anxious *(OR = 2.78; p = 0.018)*, have low perceived control *(OR = 3.06; p = 0.008)*, do not smoke *(OR = 4.41; p = 0.028)* and do not drink alcoholic beverages *(OR = 5.67; p = 0.000)*.

Conclusions: Nurses should be aware that gender differences between men and women make mean they differ in terms of cardiovascular risk. For this reason, they should be aware of the need to identify the factors that can influence the risk and define and implement interventions that reduce this risk for each gender.

Keywords: Gender and Health; Cardiovascular diseases; Risk Factors

RESUMEN

Introducción: No siendo las enfermedades cardiovasculares exclusivo del hombre o de la mujer, es importante saber cuáles son las diferencias que existen entre los sexos, ya que es un hecho que los problemas físicos y psicosociales que les distinguen, pueden influir en los diversos ámbitos de la salud, especialmente la salud cardiovascular.

Objetivos: Identificar las diferencias de género en una muestra de personas con enfermedades del corazón.

Métodos: Estudio cuantitativo, transversal, que utiliza el análisis descriptivo y multivariante de datos con la función de regresión logística.

Resultados: Los datos indican que, en comparación con los hombres, las mujeres son más ansiosos *(OR = 2.78; p = 0.018)*, tienen bajo control percibido *(OR = 3.06; p = 0.008)*, no fume *(OR = 4.41; p = 0.028)* y no ingerir bebidas alcohólicas *(OR = 5.67; p = 0.000)*.

Conclusións: Las enfermeras deben ser conscientes de que las diferencias de género entre hombres y mujeres hacen difieren en su riesgo cardiovascular. Por esto, deben ser conscientes de la necesidad de identificar los factores que pueden influir y definir y implementar intervenciones que pueden reducir el riesgo de cada género

Palabras Clave: Género y Salud; Enfermedades Cardiovasculares; Factores de Riesgo

INTRODUCTION

Although the concepts of gender and sex are commonly understood as analogous, because they are related to each other, in fact they are different. Talking about gender and sex differences in conceptual terms is to speak of different defining characteristics. However, while the concept of sex refers to biological/genetic characteristics, the concept of gender adds other characteristics to these, such as behaviour, expectations and social roles played, which influences how people perceive

themselves and others. Thus, it appears that gender is a broad and complex concept, involving not only biological/genetic issues, but also psychosocial differences between men and women. The importance of understanding how the specific characteristics of gender influence each individual's health, in particular as regards identifying risk factors for cardiovascular disease (CVD) is important in preventing these diseases, especially when there are disparities (Shah, Palaskas, & Ahmed, 2016).

The aim of this study is to identify gender differences in a population with heart disease by analysing data collected by Pacheco in 2011.

1. THEORETICAL FRAMEWORK

Cardiovascular disease (CVD) is the leading cause of mortality worldwide. Currently, more people die with a disease of this type than any other. Statistically, it is estimated that 17.5 million people died from CVDs in 2012, representing 31% of all deaths globally. Moreover, it is estimated that 7.4 million are attributable to coronary heart disease (CHD) and 6.7 million to stroke. Among all CVD deaths worldwide, approximately 75% occurred in low- and middle-income countries (WHO, 2016).

According to the report of the Global Burden of Disease in 2004, CVD, the single biggest cause of death as well as a major cause of morbidity, accounts for 32% of deaths in women and 27% in men (Vaccarino et al., 2011).

In Europe, CVD accounts for 45% (over 4 million) of all the deaths annually, according to the European Society of Cardiology. In terms of gender, it represents 49% of all deaths in women (2.2 million) and 40% of all deaths in men (1.8 million). It is also worth noting that the most common form of mortality from CVD in Europe is CHD (20%), followed by cerebrovascular disease (11%). However, gender differences are not evident with regards to mortality due to CHD (since the percentage that affects men and women is similar (19% vs 20%), but rather with regards to mortality caused by cerebrovascular disease and other cardiovascular diseases, which are more highly prevalent in women, with percentages of 14% and 15%, respectively, compared to 9% and 12% for men (Townsend et al., 2016).

A study by Pereira et al. (2013) shows that even though CHD mortality rates differ among different countries, there has been a decline in the rate since the 80s, especially in the percentage of women who die from this disease. This trend has become more prominent since the 90s.

Despite CHD currently being the second most common cause of death in Portugal, a change has been observed in the distribution of different risk factors, with a decline beginning in the 70s in hypertension rates, smoking decreasing in men and increasing in women, and also increased obesity at younger ages. In addition to these facts, there is also an improvement in managing CHD mainly due to greater availability of treatment and the appearance and development of interventional cardiology. This has been promoting a decrease in mortality rates from this disease (Pereira et al., 2013).

Several studies have shown that women have been a suboptimal target of preventive care in relation to CVD, which may have contributed to worse health outcomes compared to men. At the heart of that evidence may be the fact that most studies, from which guidelines for the prevention and treatment of CVD emerge, includes a higher number of men. Thus, in not considering the specifics of gender, prevention inadequate in time and manner to the female gender may be embarked upon. It has also been observed that although there is currently a greater number of women in randomized trials, the percentage is still low compared to the percentage of men. So, there remains a tendency to extrapolate to women conclusions drawn from mostly male samples (Hamill & Ingram, 2015; Shah, Palaskas, & Ahmed, 2016).

A number of global scientific organizations have made an effort to look at men and women differently, defending particular care for each gender as each has differentiated physiological, clinical and psychosocial characteristics with differing impacts on their health. Considering this, the American Heart Association (AHA) has issued specific recommendations regarding women's cardiovascular health since 2004 (Mosca et al., 2011; McSweeney et al., 2016).

Finally, it is worth mentioning that most CVD can be prevented through an effective management and approach to behavioural risk factors, especially smoking, diet, obesity, physical activity and alcohol consumption. For this, it is urgent to identify people with CVD early or those are at high cardiovascular risk (with one or more factors such as hypertension, diabetes, dyslipidemia or with diagnosed CVD) as well as pointing them towards proper health management through the use of counselling and appropriate therapy (WHO, 2016).

2. METHODS

This is a quantitative and cross-sectional study conducted at three hospitals in the north of Portugal. A comparison between genders was performed from a sample of individuals with heart disease hospitalized in the cardiology ward and intensive care unit.

2.1 Sample

The non-probabilistic and intentional sample consisted of 104 men (65%) and 56 women (35%), a total of 160 individuals with heart disease. With an average age of 62 years with a level of education of five years, 81.3% of the sample were married, 70% did not work and 50% had previous heart problems. The primary diagnosis of hospitalization was Acute Myocardial Infarction

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(AMI) for 58.8% of the sample, Congestive Heart Failure (CHF) for 16.9% and Unstable Angina (UA) for 13.8%. The most common treatments performed were: medical treatment (41.3%), followed by angioplasty (40.6%). As for the risk factors identified, the following emerged from the data collection: dyslipidemia (75%), hypertension (69.5%), diabetes (34.4%) and smoking (21.3%), with approximately 20 cigarettes/day, lack of exercise (55%), alcohol consumption (44.4%) and the lack of dietary care (41.9%). Regarding psychosocial variables, it was found that 33.8% of the sample had depressive symptoms, 55.6% had anxiety symptoms and 57.5% showed low perceived control.

2.2 Data collection instruments and procedures

Data collection followed all of the ethical guidelines underlying such a study. Permission was requested from the ethics committees of the institutions where data was collected. The purpose of the study was explained to participants who also received information about the study and guaranteed confidentiality of their data. Their consent was obtained to apply the instrument.

The data were collected by applying a form which included two parts, the first related to sociodemo-graphic and clinical data, and the second consisting of two instruments: one that measured anxiety and depression by applying the Portuguese version of the Hospital Anxiety and Depression Scale (HADS), and the other which evaluated perceived control through the Portuguese version of the Control Attitudes Scale-Revised (CAS-R).

HADS is an instrument consisting of two seven-item subscales, wherein one assesses anxiety (HADS-A) and the other depression (HADS-D). These are scored separately on a Likert scale ranging from zero to three. In each subscale a score below 8 indicates a normal psychological state, a score of 8 to 10 suggests the presence of anxiety and/or depression and a score over 10 suggests severe psychological disorders. Upon validation in Portugal, this instrument obtained a good internal consistency (Pais-Ribeiro et al., 2007). In this study, the Cronbach's alpha values obtained were 0.74 and 0.71, respectively in the anxiety and depression subscales.

CAS-R is an instrument which measures the degree of perception of perceived control that individuals with heart disease have relative to the disease. It consists of eight items with a five-point Likert-type response scale. Its score ranges between 8 and 40 points such that the higher the score, the greater the perceived control (Moser et al., 2009). This instrument has been validated for the Portuguese context with acceptable psychometric characteristics (Pacheco & Santos, 2014). Since a cutoff point has not been defined so as to identify individuals with low and high perceived control (McKinley et al., 2012), we used the median obtained in this study, 29, as the cutoff to classify perceived control as low (<29) and high (≥29). A Cronbach's alpha of 0.65 was obtained for the sample in this study.

2.3 Data analysis and processing

The statistical analysis was performed using the Software Statistical Package for Social Sciences (SPSS), version 19. The sample was divided into two groups (men and women).

The presentation of the data was performed using descriptive statistics using the mean (M), standard deviation (SD), frequency (freq) and percentages (%) when necessary. In order to compare men and women, Student's t-test was used to analyse continuous variables for unpaired samples, and for categorical variables, the chi-square test (x^2) was used to compare proportions.

In order to identify the differences between men and women, logistic regression was used by the stepwise backward likelihood ratio method having entered into the model variables that were statistically significant at 5%. The statistical interpretation of the tests was performed using a 5% level of significance with a 95% confidence interval.

3. RESULTS

Univariate Analysis

The sociodemographic and clinical variables were compared with regard to gender (Table 1). No differences were found for days of hospitalization, number of cigarettes smoked per day, employment status, religion, cohabitation, hospitalization diagnosis, treatments, prior hospitalizations, previous heart problems, dyslipidemia, hypertension, diabetes and nutritional care. Nevertheless, compared to men, women in our sample were found to be older ($p<0.05$), have a lower level of education ($p<0.05$), fewer are married (p <0.05), do not smoke ($p<0.01$), do not drink alcohol ($p<0.0001$) and do not exercise ($p<0.05$).

Table 1: Univariate analysis, taking into account sociodemographic and clinical characteristics (N=160)

Variable	Men (n = 104)	Women (n = 56)	P
Age *(M ± SD)*	60.69 ± 11.11	64.91 ± 12.61	0.031[*]
Years of education *(M ± SD)*	6.04 ± 3.67	4.63 ± 3.69	0.022[*]
Days of hospitalization *(M ± SD)*	4.42 ± 3.64	4.34 ± 3.55	0.889
Cigarettes/day *(M ± SD)*	19.53 ± 9.91	19.25 ± 7.89	0.957
Marital status (married) *(%)*	86.50	71.40	0.020[*]
Employment status (Not working) *(%)*	65.40	78.60	0.083
Is Religious *(%)*	93.30	98.20	0.162
Cohabitation (Yes) (%)	91.30	87.50	0.439
Hospitalization diagnosis *(%)*			0.219
AMI	60.60	55.40	
UA	16.30	8.90	
CHF	15.40	19.60	
Others	7.70	16.10	
Treatment *(%)*			0.067
Medical	34.60	53.60	
Angioplasty	45.20	32.10	
Surgical	20.20	14.30	
Prior hospitalizations *(%)*	41.30	35.70	0.487
Previous heart problems (%)	49.0	51.80	0.740
Dyslipidemia *(%)*	75.00	75.00	1.00
Hypertension *(%)*	71.20	66.10	0.506
Diabetes *(%)*	31.70	39.30	0.337
No smoking habits *(%)*	71.20	92.90	0.001[**]
No alcohol consumption *(%)*	41.30	82.10	0.000[***]
Do not exercise *(%)*	49.00	66.10	0.039[*]
No dietary care *(%)*	45.20	35.70	0.246

UA: Unstable Angina; AMI: Acute Myocardial Infarction; CHF: Congestive Heart Failure; M: Mean; SD: Standard Deviation
[*] *p <0.05;* [**] *p <0.01;* [***] *p <0.0001*

For the psychosocial measures evaluated (Table 2), women showed a higher HADS- A score compared to men (p<0.05). This was corroborated by the higher proportion of them exceeding the cutoff point for anxiety (66.1% vs. 50%). This trend was also found with HADS-D, showing that women a score higher than men (p<0.0001), which was observed by a higher percentage of them exceeding the cutoff point for depression (46.4% vs 26.9%). As for assessing perceived control by applying the CAS-R, women were found to score lower than men (p<0.0001), indicating that they had a lower perception of control of the disease. This was corroborated when applying a cutoff point for lower perceived control (CAS-R <29) to the scale and a higher proportion of women in the group were found to have lower perceived control (76.8%) compared to men (47.1%).

Table 2: Univariate analysis, taking into account psychosocial variables (N=160)

Variable	Men (n = 104)	Women (n = 56)	p
Anxiety			
HADS-A *(M ± SD)*	7.89 ± 3.87	9.33± 3.81	0.025[*]
HADS-A ≥8 *(%)*	50.00	66.10	0.048[*]
Depression			
HADS-D *(M ± SD)*	5.32 ± 3.16	7.46 ± 3.44	0.000[**]
HADS-D ≥8 *(%)*	26.90	46.40	0.013[*]
Perceived control			
CAS-R *(M ± SD)*	28.6 ± 3.66	25.7 ± 3.82	0.000[**]
CAS-R <29 *(%)*	47.10	76.80	0.000[**]

HADS-A: Hospital Anxiety and Depression Scale – Anxiety; HADS-D: Hospital Anxiety and Depression Scale – Depression; CAS-R: Control Attitudes Scale – Revised; M: Mean; SD: Standard Deviation
[*] *p <0.05;* [**] *p <0.0001*

Multivariate analysis

After controlling the variables related to gender in the univariate analysis by multivariate logistic regression in order to identify the variables relating to women, the regression model *(Nagelkerke R^2=0.39)* only selected some (Table 3). The following were significant: non-smoking (p<0.05), not consuming alcohol (p<0.0001), the presence of anxiety (p<0.05) and low perceived control (p<0.01). Marital status (p=0.064) and not doing physical exercise (p=0.098) were not significant. We therefore concluded that, compared to men, women are more anxious, have low perceived control, are non-smoking and do not consume alcohol. On the other hand, they are less likely to be married and less likely to do exercise.

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Table 3: Summary of the model multivariate analysis of independent correlated variables with gender, using logistic regression (N=160)

Variable	B	SE	Wald Chi-square	df	Odds Ratio (OR)	95% CI		p
Marital Status (Married)	- 0.995	0.537	3.430	1	0.370	0.129	1.060	0.064
Non- Smoking	1,486	0.674	4.853	1	4.417	1.178	16.564	0.028[*]
No Alcohol Consumption	1.736	0.455	14.545	1	5.673	2.325	13.844	0.000[***]
Do not exercise	0.697	0.422	2.730	1	2.008	0.878	4.591	0.098
Presence of Anxiety	1.026	0.433	5.610	1	2.789	1.194	6.517	0.018[*]
Low Perceived Control	1.121	0.425	6.958	1	3.068	1.334	7.056	0.008[**]

CI: Confidence Interval; SE: Standard Error; df: degrees of freedom
Female gender coded as 1
[*] *$p < 0.05$;* [**] *$p < 0.01$;* [***] *$p < 0.0001$*

4. DISCUSSION

From the results it appears that, compared to men, women are more anxious, have low perceived control, are not smokers and do not drink alcohol. The data also revealed that, though not statistically significant, they are less likely to be married and less likely to do exercise. As for other traditional CVD risk factors, such as hypertension, dyslipidemia and diabetes, no differences between the sexes were found.

The bibliography indicates that the physical and psychosocial characteristics that distinguish men and women may influence many areas of their health, including cardiovascular health (WHO, 2016; Shah, Palaskas, & Ahmed, 2016). As a result, there is a growing trend in issuing specific recommendations for each gender as a way to meet their individual/specific characteristics (Mosca et al., 2011; McSweeney et al., 2016).

Psychosocial stress has been identified as having a negative impact on CVD, both in men and women, contributing to its onset, exacerbation, progression and increase in its risk (Moser et al., 2009; Olafiranye et al., 2011; Mckinley et al., 2012; McSweeney et al., 2016). In fact, these variables currently have as great a weight or greater on individuals' cardiovascular health as traditional risk factors and/or the presence of comorbidities (Moser et al, 2009; Olafiranye et al., 2011).

It is worth noting that as well as negative emotional states being common in individuals with CVD, they negatively affect their quality of life, adherence to recommended treatments, the costs of care as well as the recovery from the disease and are associated with a large comorbidity and mortality. Their presence also promotes the exacerbation of traditional risk factors and adopting less healthy behaviours (Olafiranye et al., 2011; PerK et al., 2012; Pajak et al., 2013).

Among the most widely studied psychosocial risk factors is depression, whose evidence confirms it as a factor favouring increased cardiovascular risk. Anxiety also has a negative impact on cardiovascular health according to several studies, even though it has been researched less and more controversially (Moser et al., 2009; Mckinley et al., 2012; McSweeney et al., 2016).

Several studies have indicated that both anxiety and depression, conditions currently considered a public health problem, are more common and prevalent in women and persisted more in them than in men (Doering et al., 2011; Pajak et al., 2013; Prata, Martins, Ramos, Rocha-Gonçalves, & Coelho, 2016). This fact confirms our results since they indicated percentages of anxiety and depression in women in our sample (66.1% and 46.4% respectively) higher than those of men (50% and 26.9% respectively). It is worth reflecting on these results, since the evidence suggests that the treatment of negative psychosocial factors, such as anxiety and depression, help individuals with CVD to recover, reducing the number of events and improving their quality of life (Olafiranye et al., 2011; PerK et al., 2012; Pajak et al., 2013; McSweeney et al., 2016).

With regard to marital status, the multivariate analysis in our study revealed that it is not statistically significant; however, women are less likely to be married. With regard to this information, research has shown that unmarried individuals have fewer resources, less social support, less social control, more risk behaviours and worse health outcomes compared to married people (Dupre & Nelson, 2016). The study of this variable in subjects with CVD, especially in acute coronary syndrome (Jiang et al., 2013; Kilpi, Konttinen, Silventoinen, & Martikainen, 2015; Dupre & Nelson, 2016) shows that unmarried individuals are more susceptible to suffer cardiac events and are associated with higher mortality. Nevertheless, looking at gender differences, it appears that women always have increased risk of cardiac events than men whatever their marital status (Jiang et al., 2013).

Another psychosocial factor which has been studied most recently is perceived control. This study found a low perception of control over health (low perceived control) on the part of women. Our results are corroborated by in the study by Doering et al. (2011).

Evidence has shown that a low perceived control has a negative impact on cardiovascular health and promotes negative emotional states (anxiety and depression) considered drivers of cardiovascular problems (Moser et al., 2009; Doering et al., 2011; Mckinley et al., 2012; Pacheco & Santos, 2014, 2015).

Looking at the results of this study, we found that, compared to men, women do not smoke. This did not surprise us, since overall smoking prevalence is roughly five times higher in men than in women (48% vs 10%) (Appelman et al., 2015). However, it is important to note here that the evidence suggests that women who smoke cigarettes have a 25% higher risk of developing

CVD, compared to men who smoke, regardless of the intensity of consumption or other cardiovascular risk factors (McSweeney et al., 2016). Several studies also show that quitting smoking in both genders has similar benefits in reducing the risk of CVD (Perk et al., 2012; Appelman et al., 2015; McSweeney et al., 2016).

With regard to the results which show a high rate of inactivity among women (66.1%), we can see that they are supported by research by Prata et al. (2016), which reveals that lower levels of education or occupation are associated with lower levels of exercise among women. Kotseva et al. (2016) also concluded that approximately 60% of their sample did little or no exercise and that the percentage of women who mentioned doing physical exercise was lower compared to men (30.8 vs 43%).

It is also noted that higher levels of negative emotional factors, including anxiety and depression, evidenced in the women in the sample, are associated with lower levels of physical activity among women. This is corroborated by studies by Mosca et al. (2011) and McSweeney et al. (2016).

Finally, another result which emerges in this study is a clear tendency for women not to consume alcohol compared to men. This result did not astonish us either, as the evidence has shown that alcohol consumption is more common in males (Prata et al., 2016). The European Society of Cardiology guidelines state that moderate alcohol intake (one or two units per day) reduced the risk of CVD relative to non-consumers. However, it warns that this situation is not very clear since there is research that casts doubt on this finding, suggesting that any use of this substance is associated with elevating blood pressure and body mass index. In terms of gender, mortality from ischemic heart disease is twice as high for women who drink alcohol in excess compared to men (Piepoli et al., 2016).

CONCLUSIONS

The evidence has shown that females have an increased risk of CVD relative to males, when considering some of their biological and psychosocial characteristics.

Our study identified some risk factors which are more prevalent in women than in men. The results also highlighted the need for people with heart disease improve their knowledge of cardiovascular risk with a view to prevention and effective treatment.

In short, health professionals, particularly nurses, should be aware that there are differences between men and women that distinguish them in relation to cardiovascular risk, making them more vulnerable to the onset of CVD. For this, these professionals should be aware of the need to collect factors that can influence the cardiovascular risk systematically, defining and implementing interventions that are in line with recommendations to reduce this risk for each gender. It is also important to develop interventions to increase perceived control since psychosocial distress factors are very common in people with these disorders, especially women. This will help to decrease psychosocial stress, preventing the exacerbation of risk and disease in individuals, and thus increase their adherence to treatment and healthy behaviours.

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