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ORIGINAL RESEARCH

Demographic profile and quality of life of women with cardiovascular and respiratory diseases: population-based study

Perfil sociodemográfico e qualidade de vida de mulheres com doenças cardiovasculares e respiratórias: estudo de base populacional

Perfil sociodemográfico y calidad de vida de mujeres con enfermedades cardiovasculares y respiratorias: estudio poblacional

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ABSTRACT | This study aims to describe the profile of three groups of women; apparently healthy (non-sick – NS); with cardiovascular diseases (CD); and with chronic respiratory diseases (RD). These groups were compared according to sociodemographic variables (age group, education, ethnicity, and family income) and quality of life (QoL) data, composing the domains: physical, psychological, social relations, and environment. This study is characterized as quantitative, analytical, observational, and cross-sectional population-based, with information extracted from the Women's Health Survey, conducted in the city of Uberaba-MG. A total of 1,387 women were interviewed, and information on CD, RD, age, education, ethnicity and family income were collected. The QoL was studied using WHOQOL – BREF, according to its four domains. Descriptive and inferential statistics were performed. The CD group is composed of women aged 50 years and older and low education level, in contrast to the women of the RD group , who are younger and have higher education level. As for QoL, women with CD (31.65%) had lower levels than women with RD (19.10%), in the domains: physical (50.6;54.0;<0.0001), psychological (55.1;58.7;<0.0001), social relations (75.8;77.2;0.0055), and environment (41.7;43.0;0.0173), values on average and p, respectively. Therefore, the QoL domain that obtained the lowest score for all groups was the environment and women with CD presented lower values for all categories, which were statistically significant.

Keywords | Noncommunicable Diseases; Women; Respiratory Tract Diseases; Cardiovascular Diseases; Quality of Life.

RESUMO | O objetivo do estudo é descrever o perfil de três grupos de mulheres: aparentemente saudáveis (não doentes-ND); com doenças cardiovasculares (DC); e com doenças respiratórias (DR) crônicas. A pesquisa comparou esses grupos conforme variáveis sociodemográficas (faixa etária, escolaridade, etnia e renda familiar) e dados sobre qualidade de vida (QV), segundo domínios: físico, psicológico, relações sociais e meio ambiente. Este estudo é caracterizado como quantitativo, analítico, observacional e transversal de base populacional, com informações extraídas do Inquérito de Saúde da Mulher, realizado na cidade de Uberaba-MG. Foram entrevistadas 1.387 mulheres, com o objetivo de coletar informações sobre DC, DR, idade, escolaridade, etnia e renda familiar. A QV foi estudada por meio do WHOQOL – Bref, segundo os quatro domínios. Foi realizadSSo levantamento estatístico, descritivo e inferencial. Identificou-se que o grupo com DC é formado por mulheres com idade a partir de 50 anos e baixa escolaridade, em oposição ao

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grupo de mulheres com DR, que são mais jovens e possuem escolaridade superior. Quanto à QV, as mulheres com DC (31,65%) apresentaram níveis inferiores em relação às mulheres com DR (19,10%), nos domínios: físico (50,6;54,0;<0,0001), psicológico (55,1;58,7;<0,0001), relações sociais (75,8;77,2;0,0055) e meio ambiente (41,7;43,0;0,0173), valores em média. Portanto, o domínio de QV que obteve menor pontuação para todos os grupos foi o meio ambiente e as mulheres com DC apresentaram valores mais baixos, estatisticamente significativos, para todas as categorias.

Descritores | Doenças Crônicas Não Transmissíveis; Mulheres; Doenças Respiratórias; Doenças Cardiovasculares; Qualidade de Vida.

RESUMEN | El objetivo del estudio es describir el perfil de tres grupos de mujeres: aparentemente sanas (no enfermas-NE); con enfermedades cardiovasculares (EC); y con enfermedades respiratorias crónicas (ER). La investigación comparó estos grupos según variables sociodemográficas (grupo de edad, escolaridad, etnia e ingresos familiares) y datos sobre calidad de vida (CV), según dominios: físico, psicológico, relaciones sociales y medio ambiente. Este estudio se caracteriza por ser cuantitativo, analítico, observacional y transversal de base poblacional, con información extraída de la Encuesta de Salud de la Mujer, realizada en la ciudad de Uberaba-MG. Se entrevistó a un total de 1.387 mujeres, con el objetivo de recopilar información sobre EC, ER, edad, escolaridad, etnia e ingresos familiares. La CV se estudió utilizando el WHOQOL – Bref, según los cuatro dominios. Se realizó encuesta estadística, descriptiva e inferencial. Se identificó que el grupo con EC está formado por mujeres con edad de 50 años o más y baja escolaridad, en contraposición al grupo de mujeres con EC, que son más jóvenes y tienen estudios superiores. En cuanto a la CV, las mujeres con EC (31,65%) presentaron niveles más bajos en comparación con las mujeres con ER (19,10%), en los siguientes dominios: físico (50,6; 54,0;<0,001), psicológico (55,1; 58,7;<0,0001), relaciones sociales (75,8;77,2;0,0055) y medio ambiente (41,7;43,0; 0,0173), valores medios. Por lo tanto, el el dominio de CV que obtuvo la puntuación más baja para todos los grupos fue el medio ambiente y las mujeres con EC presentaron valores más bajos, estadísticamente significativos, para todas las categorías.

Palabras clave | Enfermedades Crónicas No Transmisibles; Mujeres; Enfermedades Respiratorias; Enfermedades Cardiovasculares; Calidad de Vida.

INTRODUCTION

Chronic non-communicable diseases (NCDs) are characterized as long-term diseases and for resulting from a combination of genetic, physiological, environmental, and behavioral factors[1]. The most fought NCDs in the world are represented by cardiovascular diseases, diabetes, chronic respiratory diseases, and cancers[2].

Worldwide, with the evident epidemiological transition resulting from the growth of life expectancy associated with the control of infectious diseases, and maternal and child mortality, NCDs have become the dominant health concern. They represent two-thirds of the total causes of worldwide deaths, half of the disability and rapid cost growth, not only related with the treatment of the disease itself, but also with the expenses added to these conditions, as absences from work and loss of productivity, with direct repercussions on the country's economy[4]. According to DATASUS[5], hospital expenses with circulatory system diseases were about 200 million Brazilian reais. For respiratory diseases, approximately R$ 91 million per month were spent.

Following global efforts to control NCDs, the Brazilian Ministry of Health launched, in 2011, the "Strategic Action Plan to Tackle Noncommunicable Diseases" for 2011-2022, assuming goals and commitments based on population actions to control the high rates of these diseases[6]. In 2013, the National Health Survey, conducted in Brazil to monitor NCDs, investigating both risk factors and associated morbidities, revealed that 45.1% of the Brazilian population has at least one NCD and this percentage is 50.4% among women[5].

Considering the economic difficulties on the Brazilian scenario and the significance of the role of women in society, the relevance of knowing some sociodemographic characteristics and indicators of quality of life (QoL) of women who today present NCDs stands out. The research includes, in particular, NCDs of cardiovascular and respiratory causes, due to their high incidence. As the public policies, that confront these diseases, act on a preventive basis, it is understood that they need to reach a portion of those healthy individuals that have already been exposed to risk factors or similar lifestyle habits. Thus, this study aims to describe and to compare the profile of apparently healthy women with women with cardiovascular diseases or chronic respiratory diseases, according to sociodemographic and QoL variables.

METHODOLOGY

This is a quantitative, analytical, observational and cross-sectional population-based study, with information extracted from the Women's Health Survey, conducted in the city of Uberaba-MG.

The volunteers included in the study were women aged 18 years or older, who agreed and signed the informed consent form. The selection process was performed by probabilistic sampling in multiple stages. The sample calculation was made and it was necessary at least 1,530 women, according to a previous study[7]. This study used a 95% confidence interval and a 2.5% margin of error, according to the formula ($n = \frac{(Z_a)^2 \pi(1-\pi)}{(me)^2}$, being =0.05); Z_a: margin of error for interval estimates. For this study, the total sample was 1,387 participants with 170 women were excluded for presenting missing data.

The collections were performed by trained interviewers in household visits, from March to October 2015, with random checking of 10% via telephone. Information on cardiovascular and respiratory diseases was collected in a self-reported manner. Thus, the information was accepted by the interviewer based on the respondent's report that a doctor had made the nosological diagnosis of the indicated disease.

The health conditions studied were grouped, composing a dichotomous variable related to the presence of at least one disease. They were divided into cardiovascular diseases (CD) – arterial hypertension, coronary disease/angina pectoris, infarction, heart failure, cardiomegaly or others – and respiratory diseases (RD) – repeated respiratory tract infections, bronchitis and chronic sinusitis, asthma, emphysema, pulmonary tuberculosis and others. The participants were grouped according to age group (<30 years; 30-39; 40-49; 50-69; and ≥70); the education level was categorized as illiterate; up to 5 years of study; >5-<9; 9-<12; ≥12; ethnicity was self-reported and classified as white; black/brown; and another; and per capita family income was categorized as up to 0.5 minimum wages (MW); >0.5-1 MW; >1-2.5 MW; and >2.5 MW.

The QoL was studied through the WHOQOL - BREF, an instrument of the World Health Organization (WHO), validated for use in Brazil[8]. This tool was developed specifically for QoL assessment, consisting of 26 questions with Likert scale responses from 1 to 5. The WHOQOL BREF generates scores ranging from 0 to 100, presented by domains (physical, environment, social, and psychological relationships) or as a general score, and the higher the score, the better the QoL.

Initially, a mask was created in the EpiData® for data entry, prior to tabulation, with double typing. The analysis of this study consisted of descriptive statistics, using simple and relative frequencies, means, and standard deviations. Respecting the normality and homogeneity of the data, the inferential statistic used one-way ANOVA, with Tukey's post-test to compare the QoL domains and the groups. A comparison test of proportions (chi-square test with residual analysis) was also used to compare the data age group, schooling, ethnicity and per capita family income, according to the groups, considering 5% significance level.

RESULTS

In this study, 1,557 women were interviewed and the prevalence was found at 28.19% (439 women) with CD, 17.02% (265 women) with RD, 10.92% (170 women) with CD and RD and 43.87% (683 women) without respiratory or cardiovascular diseases (NS – not sick; data not shown in the tables). Women with double involvement (cardiac and respiratory) did not enter the analyses. Thus, the final sample of this study is 1,387 women.

Table 1 shows the general distribution of the variables of age group, education level, ethnicity, and income in each group of women studied. Regarding age group, a significantly different behavior is observed between groups, and in women with CD and NS there is a higher proportion in the older age groups (above 50 years) compared to the general one. In women with RD, a higher proportion of younger women (aged under 30 years) is identified.

Regarding education, in the group of women with CD, there was a higher prevalence of women with less schooling years (up to 5 years). In the RD and NS groups, there is higher schooling years (12 or more). The prevalent ethnicity was white for all groups. The predominant per capita income of the women studied ranged from 0.5 to one minimum wage, not being a determining factor of statistical differences (Table 1).

Table 1. Frequency distribution of explanatory variables age, education, ethnicity and per capita family income, according to the groups of women with cardiovascular, respiratory and non-patient diseases, Uberaba, 2015

	GROUP								
	CD (439 – 31.65%)		RD (265 – 19.10%)		NS (683 – 49.24%)		GENERAL (1387 – 100.0%)		
Age group (years)	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**p-value**
Less than 30	15	3.4†	79	29.8†	155	22.7†	249	18.0	<0.0001*
30 to 39	14	3.2†	61	23.0†	145	21.2†	220	15.9	
40 to 49	38	8.7†	54	20.4†	128	18.7†	220	15.9	
50 to 69	247	56.3†	67	25.3†	214	31.3†	528	38.1	
70 or more	125	28.5†	4	1.5†	41	6.0†	170	12.3	
Education level (years)	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**p-value**
Illiterate	27	6.2†	2	0.8†	17	2.5†	46	3.3	<0.0001*
Up to 5	152	34.6†	22	8.3†	97	14.2†	271	19.5	
>5 to<9	106	24.1	52	19.6	165	24.2	323	23.3	
9 to<12	53	12.1†	74	27.9†	155	22.7†	282	20.3	
12 or more	101	23.0†	115	43.4†	249	36.5†	465	33.5	
Ethnicity	**n**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**p-value**
White	267	61.2†	149	56.7	350	51.5†	766	55.5	0.008*
Black/Brown	158	36.2†	103	39.2	314	46.2†	575	41.7	
Other	11	2.5	11	4.2	16	2.4	38	2.8	
Per capita family income	**n.**	**%**	**n**	**%**	**n**	**%**	**n**	**%**	**p-value**
Up to 0,5 minimum wage	96	21.9	59	22.3	187	27.4	342	24.7	0.09
>0.5 to 1 minimum wage	167	38.0	87	32.8	224	32.8	478	34.5	
>1 to 2.5 minimum wages	114	26.0	85	32.1	198	29.0	397	28.6	
>2.5 minimum wages	62	14.1	34	12.8	74	10.8	170	12.3	

Source: Survey on Women's health carried out in the municipality of Uberaba-MG
n: number of women; *: p<0.05 the explanatory variable presents significant distribution according to the groups of women; †: residue analysis - significant difference in relation to the general proportion.

The means and standard deviations of QoL domains are presented in Table 2.

Table 2. Distribution of means and standard deviations of quality of life domains, according to the occurrence of respiratory, cardiovascular and in women without these diseases, Uberaba, 2015

Quality of Life Domain	CD (n=439)	RD (n=265)	NS (n=683)	p
Physician	50.56±11.2	53.98±10.4†	55.99±10.1*§	<0.0001
Psychological	55.07±8.68	58.69±9.16†	57.73±8.56*	<0.0001
Social relation	75.8±14.4	77.2±14.9	78.6±14.4*	0.0055
Environment	41.73±6.63	43±6.63†	42.72±6.63*	0.0173

Source: Survey on Women's health carried out in the municipality of Uberaba-MG
Data are presented in mean value and standard deviation. CD: cardiovascular diseases; RD: respiratory diseases; NS: not sick; *: statistical difference between CDxNS;†: statistical difference between CDxRD;§: statistical difference between DRxND.

DISCUSSION

In summary, among the women interviewed, 31.65% had CD; 19.10% RD; and 49.24% without respiratory or cardiovascular diseases (NS). The predominant age group of women with CD and NS was 50 years of age, whereas women with RD were younger. Women with CD had low education level in relation to women with RD or NS. Regarding QoL, the domain that obtained the lowest score for all groups was the environment, whereas, when comparing the groups, women with CD presented lower values for all categories, with statistical difference for all domains. In this study sample, it was identified that chronic cardiovascular diseases were more prevalent than chronic respiratory diseases. Silva et al.[9] aimed to characterize the morbidity profile reported by users of Family Health Strategy teams in the Northeast macroregion of Minas Gerais. They found morbidity percentages reported in the circulatory and respiratory system of 37.1% and 25.4% for women, corroborating the data found in this study. This predominance of NCDs of cardiovascular cause in the state of Minas Gerais is a reflection of the national scenario, since the 2013 National Health Survey revealed that about one fifth of the national population has a medical diagnosis of arterial hypertension[4].

Regarding the age group of women who reported NCDs, there was a prevalence of CD and NS in women

aged between 50 and 69, emphasizing the predominance of this health condition in older age groups. Hypertension, for example, often occurs in women with advancing age, and the loss of postmenopausal estrogen protection can play a fundamental role in this pathology[10]. Furthermore, in the postmenopausal period the formation of atheroma plaque and inflammation increases, a factor that contributes to the development of atherosclerosis[11].

Together, these conditions have direct repercussions on very unfavorable outcomes (cerebrovascular and cardiac diseases), which are associated with high mortality rates, endorsing that the high prevalence of these diseases must be managed with effective public policies.

Regarding schooling, women with CD had lower levels of education in our study. In a study conducted with the Israeli population, it was identified that the schooling factor influences the risk of mortality from cardiovascular diseases[12]. In the study, the researchers observed that there is a two-fold higher risk of mortality among women aged 45 to 69 years with less than eight years of schooling compared to women who had 13 years of schooling. Moreover, the authors found significant interactions in relation to age and gender, indicating that the effect of education on mortality was stronger among women compared to men and among younger individuals compared to older individuals. The impact of working with health education strategies with samples of low-income and educated subjects is reinforced, in an attempt to provide access to information and to influence the rates of NCDs of cardiovascular origin.

The Women's Health Survey found a higher percentage of white women, followed by black/brown and others, in all groups (NS, CD and RD), with statistical difference between the CD and NS groups. The 2012 study of the *Surveillance* System for *Risk* and *Protective Factors* for *Chronic Diseases* by *Telephone Survey* (Vigitel), in all states of Brazil, interviewed 45,448 people. Among this total, 40.9% were white, 38.0% brown and 8.5% black, a result similar to that found in this study [13]. However, when analyzing the differences according to race/color between risk factors, protection of NCDs and diseases reported as arterial hypertension, there is a higher prevalence in blacks and browns, both in women and in men, even when socioeconomic and demographic factors, as schooling and age, are adjusted.

Regarding the QoL scores obtained by the WHOQOL - BREF instrument, it was observed that the environment domain presented lower scores in all groups. This demonstrates lower QoL in this aspect, similar to that found for a group of volunteers without chronic diseases [14]. The socioeconomic profile of the sample of this study may justify this finding, considering that the environmental domain of the WHOQOL instrument addresses issues related to financial resources, leisure opportunities, safety, and other favored situations in more advantageous economic scenarios, which are probably not opportunistic to the women interviewed, since they presented average income between 0,5 and one minimum wage.

When considering that women with RD obtained higher scores in the psychological and environmental domains, compared to the NS group, two situations need to be analyzed. Firstly, about the correspondence of socioeconomic situation to QoL related to the environment domain (the sample with RD was the one with the highest levels of education and income). The second speculative situation considers that women grouped in the NS group do not have chronic diseases of respiratory and cardiovascular causes, but other diseases, which could have a negative impact on QoL related to this specific domain, may be present.

The physical domain of the WHOQOL had a significantly worse score in the group of women with CD, when compared to the group with RD. A study conducted in the Northeastern of Brazil analyzed the relationship between functional limitations and sociodemographic and health conditions of older women with low economic status. The research concluded that increasing age, widowhood, hypertension, dissatisfaction with health, absence of leisure-time physical activity practices are determining factors for the functional limitations of low-income older women[15]. Considering the profile of the population studied, public policies with preventive measures for NCDs that aim to control the risk factors of these morbidities need to be very targeted and effective to the population profile. The strategies adopted need to reach the population with low income and schooling, presenting improvements in the health service, particularly with qualification of primary care. The control of these diseases will not only create a healthier population, but will also affect the macroeconomic development of the country, considering the significant financial impact of these morbidities[16].

For the sample with NCDs of cardiovascular and pulmonary causes, cardiac[17] and pulmonary[18] rehabilitation programs are indicated , aiming at functional and QoL gains for these individuals. Given the unavailability of sufficient number of outpatient public services, low-cost home rehabilitation strategies have shown favorable results

in order to achieve functional gains comparable to those obtained in classical supervised rehabilitation strategies, besides decreasing barriers related to program adhering[19].

Finally, for the complete interpretation of this study results, it is necessary to consider that the lack of a medical diagnosis; the absence of evaluation of the disease severity, its duration and the lack of information about the conditions of treatment employed to each specific situation represent limitations for prevention and treatment.

CONCLUSION

Thus, it is concluded that the prevalence of cardiovascular and respiratory diseases in women in the municipality of Uberaba is 31.65% and 19.10%, respectively. Most women with CD are aged 50 years old and have low education level, however, there is an opposite profile among those with RD. Furthermore, women with CD have worse QoL in relation to the RD and NS group and the environment was the domain with the lowest score for all groups.

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