

Female Mortality– Profile of deaths in reproductive age not related to maternity

Mortalidade Feminina – Perfil de Óbitos na Idade Fértil Não Associados à Maternidade

Mortalidad Femenina - Profile of Deaths en la Edad Fértil No Asociados a la Maternidad

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ABSTRACT

Background and Objectives: The mortality profile is an important health indicator and its analysis allows researchers to identify inequalities and trends that require specific actions and studies. This study sought to identify the mortality profile in women of childbearing age in the municipality of Santa Cruz do Sul, in the period between 2013 and 2017. **Methods:** This is an epidemiological study, with a quantitative approach, following an exploratory descriptive and documentary research method. The data were obtained from the analysis of the Death Declaration records in the Mortality Information System of the municipality. **Results:** The mortality profile in women of childbearing age was white skin color, age between 40 and 49 years, with 8 to 11 years of schooling, who worked and lived in urban areas. Neoplasms were the main cause of death, especially in bronchi and lungs. **Conclusion:** The data show the importance of investing in women's health and cancer prevention, especially in the bronchi and lungs.

Keywords: Mortality. Woman. Women's Health. Health Profile.

RESUMO

Justificativa e Objetivos: A avaliação do perfil de mortalidade é um importante indicador de saúde, sua análise permite identificar situações de desigualdade e tendências que demandam ações e estudos específicos. Sendo assim, esse estudo tem objetivo identificar o perfil de mortalidade em mulheres na idade fértil (MIF) no município de Santa Cruz do Sul, no período entre 2013 a 2017. **Métodos:** Estudo epidemiológico, abordagem quantitativa de caráter descritivo exploratório do tipo documental. Os dados foram produzidos por meio da análise de Declarações de Óbito no Sistema de Informações sobre Mortalidade do município. **Resultados:** O perfil da mortalidade das MIF é de mulheres de raça branca, com idade entre 40 e 49 anos, tendo de 8 a 11 anos de estudo, que desempenhavam algum tipo de atividade laboral e residiam em área urbana. A principal causa de mortalidade foi a neoplasia, com destaque para a de brônquios de pulmões. **Conclusão:** Os dados mostram a importância de investir na promoção da saúde das

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mulheres e na prevenção do câncer, principalmente o de brônquios e pulmões.

Descritores: Mortalidade. Mulheres. Saúde da mulher. Perfil de Saúde.

RESUMEN

Justificación y Objetivos: Identificar el perfil de mortalidad en mujeres en edad fértil (MEF) en el municipio de Santa Cruz do Sul (Brasil), en el periodo entre 2013 y 2017. **Métodos:** Estudio epidemiológico, cuantitativo, de carácter descriptivo-exploratorio y documental. Se obtuvieron los datos por medio del análisis de los Certificados de Fallecimientos en el Sistema de Informaciones sobre Mortalidad de la municipalidad. **Resultados:** El perfil de la mortalidad de las MEF es de mujeres blancas, con edad entre 40 y 49 años, con el nivel de estudios entre 8 y 11 años, que desempeñaban algún tipo de actividad laboral y residían en barrios de la zona urbana. La principal causa de mortalidad fue la neoplasm, destacándose la de bronquios pulmonares. **Conclusión:** Los datos muestran la importancia de invertir en la promoción de la salud de las mujeres y la prevención del cáncer, principalmente el de bronquios y pulmones.

Palabras clave: Mortalidad. Mujeres. Salud de la Mujer. Perfil de Salud.

INTRODUCTION

The trajectory of the female population is marked by the struggle for more space in society over the years. As a result of this struggle, we see women more present in politics, in the labor market and in various segments of society, in addition to the time they devote to family care. The 21st century woman plays several roles, accumulating the most varied functions.¹

Women's lives are significantly affected by such functions, contributing to an increase in exposure to risk situations and, consequently, to the change in the pattern of female mortality,¹ whose reproductive age is parallel to the industrialization process. Women's participation in the production process resulted in new life habits.²

According to the World Health Organization (WHO), the female reproductive period, comprises the age group from 15 to 44 years; however, women between 10 and 49 years of age are considered fertile in Brazil. This national definition was instituted by studies of vital records and medical procedures that showed that exposure to risks related to sexual and reproductive life,³ to the female lifestyle and habits adopted during this period vary according to each phase of women's lives.^{1,2}

The major problem that results in the mortality of the female population in reproductive age is the late diagnosis of diseases and their inadequate treatment, such as sexually transmitted infections (STI) and cancer. Such finding shows the frailty of the health system, from access to prevention.²

In addition to diseases related to childbearing age, the socioeconomic context accentuates social inequalities, which seems to play a decisive role in the high mortality numbers from external causes such as violent deaths (homicides, suicides and traffic accidents). The age group most vulnerable to these causes are women aged between 15 and 24 years.²

The epidemiological profile of women's health must be evaluated so appropriate measures can be proposed; this profile varies according to factors such as region and

socioeconomic and cultural conditions. Mortality is an important health indicator because its analysis allows the identification of inequality situations and trends that require specific actions and studies, in addition to supporting processes of planning, management and evaluation of public policies.^{1,2,4}

We can thus argue that explaining the characteristics of mortality of women of childbearing age allows us to visualize their health situation and the living conditions experienced in the different regions where they live. Knowing the main causes of death of women in the reproductive period becomes relevant to enable adequate interventions capable of improving local realities, mainly by implementing health promotion measures and preventing diseases, emphasizing real regional data.¹

Our study aimed to identify the mortality profile in women of childbearing age in the municipality of Santa Cruz do Sul, Rio Grande do Sul (RS), from 2013 to 2017.

METHODS

This is a descriptive epidemiological study, with a cross-sectional and quantitative approach conducted in Santa Cruz do Sul. The municipality is located on the lower slope of the northeast of the state of Rio Grande do Sul (RS), 150 km from the capital, Porto Alegre, in a region known as Vale do Rio Pardo and has an estimated population of 129,427 inhabitants.⁵

The study sample consisted of death certificates of women of childbearing age between 2013 and 2017. The inclusion criterion was residence in the municipality of Santa Cruz do Sul. Incomplete records were excluded.

To achieve the research objectives, the authors created a structured script to be filled out with women's profile information from the documents analyzed.

Data were collected in December 2018 in the *Sistema de Informação sobre Mortalidade* (SIM – Mortality Information System), by a survey of the variables "age", "race/skin color", "schooling", "occupation", "residence

zone” and “underlying cause of death”, according to the International Classification of Diseases (ICD 10). The variables were then inserted in a Microsoft Excel® spreadsheet and analyzed by descriptive statistics.

The study limitation is the existence of incomplete death certificates, from which we could not extract any information.

This study was approved by the Research Ethics Committee of Universidade of Santa Cruz do Sul, according to Certificate of Presentation for Ethical Appreciation (CAAE) No. 02467618.9.0000.5343 and opinion no. 3,017,509, in accordance with the ethical principles defined in Resolution of the National Health Council (CNS) no. 466, of December 12, 2012.

RESULTS

In total, 194 death certificates of women of childbearing age were found. Of these, 29 (15%) were discarded since they did not meet the inclusion criteria. The study sample consisted of 165 death certificates, and the distribution of deaths did not suffer great variations over the five years analyzed.

Deaths were more frequent in the age group 40 to 49 years, 80 (48.5%) deaths, followed by 30 to 39 years, 47 (28.5%) deaths. Deaths were not as frequent in the age group 20 to 29 years, 22 (13.3%) deaths, and in the age group from 10 to 19 years, 16 (9.7%) deaths. Regarding race/skin color, 138 (83.6%) were white women, followed by black women, recording 15 (9.1%) deaths, and mixed-race women, 12 (7.3%) deaths. No deaths of women of the yellow and indigenous races were recorded.

Among these women, 116 (70.3%) worked, 32 (19.4%) were housewives and 12 (7.3%) were students. Some particularities related to occupation were also found, especially in younger women with congenital diseases; we could identify that they did not work due to their health condition. These specific situations were classified as “other”, totaling 5 (3%) women. Regarding origin, 142 women (86%) lived in the urban area, and 23 (14%) in the rural area (Table 1).

The main underlying causes of death were neoplasms, 64 (38.8%) followed by external causes, with 36 (21.8%) records, and diseases of the circulatory system, responsible for 18 (10.9%) deaths.

Other causes of mortality represented 9.7% of all deaths. In the analyzed period, 3 (1.8%) ill-defined causes of mortality and no deaths related to pregnancy, child-birth and puerperium were found.

The main neoplasms found were those of the bronchi and lungs, responsible for 11 (17.2%) deaths, followed by 8 (12.5%) breast neoplasms and 5 (7.8%) neoplasms of the cervix. Among the diseases of the circulatory system, the main causes found were acute myocardial infarction with 5 (27.8%) deaths and non-traumatic intracranial hemorrhage, with 4 (22.2%) deaths. Deaths from abdominal aortic aneurysm and primary arterial hypertension had the same frequency, registering 2 (11%) deaths for each cause. Regarding external causes of mortality, 13 (36.1%) homicides, 12 (33.3%) traffic accidents and 11 (30.6%) suicides (Table 2).

Table 1. Profile of deaths of women of childbearing age, 2013 to 2017.

Age group	N	%
10 to 19 years	16	9.7
20 to 29 years	22	13.3
30 to 39 years	47	28.5
40 to 49 years	80	48.8
Race/skin color		
White	138	83.6
Black	15	9.1
Mixed race	12	7.3
Years of schooling		
1 to 3 years	1	0.6
4 to 7 years	34	20.6
8 to 11 years	103	62.5
12 years or older	21	12.7
No schooling	6	3.6
Occupation		
Labor activity	116	70.3
Housewives	32	19.4
Students	12	7.3
Others	5	3
Origin		
Urban area	142	86
Countryside	23	14

Table 2. Causes of deaths of women of childbearing age, 2013 to 2017.

Cause	N	%
Neoplasms	64	38.8
External causes	36	21.8
Circulatory system diseases	18	10.9
Endocrine, nutritional and metabolic	12	7.3
Infectious and Parasitic Diseases	9	5.5
Nervous system diseases	7	4.2
Other causes of morality	16	9.7
Ill-defined causes	3	1.8
Neoplasms		
Bronchi and lungs	11	17.2
Breast	8	12.5
Uterine cervix	5	7.8
Colon	4	6.3
Stomach	4	6.3
Brain and encephalon	4	6.3
Pancreas	4	6.3
Circulatory system diseases		
Myocardial infarction	5	27.8
Non-traumatic intracranial hemorrhage	4	22.2
Abdominal aortic aneurysm	2	11
Primary arterial hypertension	2	11
External causes		
Homicides	13	36.1
Traffic accidents	12	33.3
Suicides	11	30.6

DISCUSSION

The gradual increase in the number of deaths according to age group was found in all studies analyzed.^{1,3,6,7} Mortality was more frequent in the white race, unlike other studies that indicate the most frequent mortality in the black and mixed race. However, we must consider that the studied municipality was colonized by Germans, so, most of the population is white. Authors⁵ point out the importance of considering the colonization process of each region studied.

Most women worked, a finding that was considered different from the analyzed literature, in which the most women were housewives.^{3,6} Regarding the development of female work activity, it is possible to say that this is due to the process of insertion of the female population in the labor market since the 1970s,² which has been evidenced in studies focused on women's profile. Work activity produces conditions that affect the life of subjects in general, thus being considered as influence in mortality levels.²

Regarding schooling, the performance of the work activity and the years of study are believed to be linked, since the women mostly had 8 to 11 years of schooling and performed work activity. This data is different from the findings of other analyses, in which most women had shorter study time and were housewives.^{1,3,6,7} It is noteworthy that, in a way, the insertion in the formal labor market indicates the need for expanding the studies, which makes these two aspects, "expansion of studies" and "increased insertion in the labor market", being articulated.

Regarding the origin, women living in the rural area still find it more difficult to access health services, and their work activity related to the cultivation of tobacco (a culture prevalent in the region) puts them in greater exposure to environmental risk factors, such as solar radiation and the use of pesticides, in addition to smoking and the great physical commitment required by this work activity.

Women in the urban area, on the other hand, are more exposed to air pollution and to intense daily activities, and due to the various roles they assume, they may be more predisposed to stress and consequently to worse life habits.^{1,2} Moreover, labor activity in the tobacco industries, without the correct use of personal protective equipment (PPE), can contribute to illness and mortality resulting from the causes found in our study due to the tobacco culture.

The percentage of ill-defined causes of mortality is considered low when compared with a study conducted in the northeast region, in which 3.7% of ill-defined causes were found.⁷ The completion of death certificates has improved in recent years, considering the decrease in the rates of ill-defined causes, revealing greater awareness of managers and better investigation of the causes of death by professionals.⁸

The main causes of mortality found in this study are similar to those of other studies, although with variation in the distribution of causes, such as neoplasms. In studies conducted in the Northeast region, neoplasms appear as the first cause of mortality, representing 20.9%⁶ and

23%.⁷ There was emphasis on breast neoplasm (23.6%), followed by cervical cancer (17.1%). On the other hand, the neoplasm of the bronchi and lungs appeared as the fifth most frequent neoplasm (5.5%).⁷ The results found in a study conducted in Bahia show cancer as the third cause of mortality of women of childbearing age, also appearing breast cancer as the main neoplasm.¹ Authors⁹ point out significant differences in cancer mortality patterns among Brazilian regions.

Cancer has been growing as the leading cause of mortality in recent years and, according to WHO, is already responsible for a higher number of deaths than coronary heart disease and stroke. Due to its magnitude as a cause of mortality, cancer stands out because it reaches the population in both developed and developing countries. Their mortality rates in reproductive age increase gradually, according to the age group of women. Thus, mortality due to neoplasms is more frequent from the age of 30.⁸⁻¹¹

It is surprising that typically female neoplasms appeared only in second and third place and that there is prominence for cancer of the bronchi and lungs. Lung cancer has a lower incidence when compared with breast cancer, but its lethality is higher and this type of neoplasm has been growing among women.¹² Lung cancer is one of the neoplasms that has shown upward trends in recent decades, due to the epidemiological changes suffered in Brazil.⁹ This neoplasm is the most frequent worldwide, with high prevalence and mortality rates, thus being the main cause of death in women living in the most developed regions, followed by breast cancer, which is more frequent in less developed regions.¹⁰

But what would be the reason that contributes to the growth of the neoplasm of the bronchi and lungs, and especially among women? A study with Korean women found that in addition to smoking, women are exposed to second-hand smoke, in addition to hormonal issues and the significant increase in human papillomavirus (HPV) infections. The hypothesis of the association of lung cancer with hormone replacement therapy or oral contraceptive use was ruled out; however, HPV infection gained prominence, especially in women that never smoked, because the virus's DNA was found in the blood of patients with lung cancer, which may be a facilitator in the early diagnosis of neoplasm. It is also noteworthy that HPV vaccination could prevent not only cervix and breast cancer, but also lung cancer.¹³

Smoking is the main cause of the development of lung cancer, accounting for at least 50% of cases in women. In the last thirty years, the burden of this neoplasm has increased worldwide among women, unlike men, and has been shown to have a differentiated clinical pattern for the disease, as they are young women and never smoked.¹⁴ Over the years, women took longer to present the disease, a fact that may be related to the onset of smoking among the female population, which was late when compared with the male population. However, a set of factors to which the population is currently exposed that may become risk factors must be evaluated, in addition to active smoking. They are: exposure to types of to-

bacco other than cigarettes; passive exposure to cigarette smoke; occupational exposure to pulmonary carcinogens such as asbestos, nickel, chromium and arsenic; radiation exposure, including radon gas in households and mines; and exposure to air pollution.

Since tobacco cultivation is prevalent in the region and in the municipality where the study was developed, the advance of this neoplasm may be related to the labor activity performed, both by the cultivation of tobacco in the rural area and by tobacco production in the tobacco industries in the urban area. However, that this statement must be confirmed by studies that could specifically approach this relationship.

Breast cancer is still the main neoplasm that affects women and appears as the main cause of death in less developed regions. It is also possible to observe the growth of the rates of this neoplasm in developing countries, thus being considered a public health problem in the context of our country. Breast cancer is diagnosed and treated timely, with a good prognosis. Therefore, the high mortality rates in the country due to this disease may be related to the late diagnosis of the disease.^{10,16}

Cervix cancer is the fourth most common type, accounting for almost nine deaths in ten in the less developed regions. It can be said that mortality as a result of it is preventable. This is the type of neoplasm that has great potential for prevention and cure, because the technologies for diagnosis and treatment of precursor lesions allow the cure of cases diagnosed in the initial phase in approximately 100% of the occurrences. Another characteristic of this problem is its strong association with the low socioeconomic level of the populations, that is, it mainly affects the groups with greater social vulnerability, and these are the ones that have greater barriers to access to the network of health services.^{10,16,17}

External causes, as the second cause of mortality, have appeared in the country since the 1980s, with high rates in large urban centers.⁷ In a study conducted in the northeast region, in the state of Bahia, external causes appear as the leading cause of mortality of WCA, with traffic accidents being the most frequent cause, followed by homicides.¹ Another study, also in the northeast, in the state of Piauí, points to external causes as the third cause of mortality, especially traffic accidents, followed by homicides and suicides.⁷

In the last thirty years, more than 90,000 women have been murdered in Brazil. The female homicide rate increased from 2.3/100,000 inhabitants in 1980 to 4.6/100,000 in 2010.¹⁸ In Rio Grande do Sul (RS), there is an average of three deaths per 100,000 women. It is believed that, in the state of RS and in rural regions of agropastoral economic matrix, there is a marked appreciation of male sexual roles, in which sexist behavior is evidenced. This contributes in some way to the increase in female deaths,¹⁹ of which is an aspect evidenced by the research data, in which homicides showed a significant increase in their occurrences over the years analyzed.

The increase in female mortality due to traffic accidents may be associated with changes in women's lifes-

style, considering their performance in the labor market and in society in general. In other words, women started driving vehicles and are thus more susceptible to the risk of mortality from traffic accidents.¹ This is also due to the sharp and gradual process of the increase in vehicles throughout the country, which generates an increase in the number of accidents that also affect the female population.

Among the causes of mortality, it is also important to be alert to the occurrence of suicide in women. In reproductive age, one in three suicides is committed by women between 25 and 44 years of age, being the fifth cause of death in women aged 20 and 44 years worldwide. The increase in the rate of suicides among the female public is related to several aspects, such as the increase in depressive conditions and the reduction of leisure activities due to work overload.²⁰

Cardiovascular diseases have great weight in public health worldwide, and the female population has been suffering from this disease. In all studies analyzed,^{1,3,6,7} this disease remains present as an important cause of mortality among women of childbearing age. Thus, when compared with men, women have twice as much cardiac arrest and are also more likely to die. In addition to having less chance of success in myocardial revascularization, considering that women do not present classic symptoms of coronary heart disease, but rather symptoms such as fatigue, indigestion, insomnia and anxiety. There is an increase in this disease in women of reproductive age due to situations specific to the female organism, such as autoimmune diseases, hypertension and gestational diabetes and complications in childbirth. The mechanisms of myocardial lesions are different in women, because myocardial lesions occur due to inflammatory changes of the coronary endothelium, which are more difficult to detect than obstructive lesions observed in the male population.^{20,21}

We identified that the mortality profile of women of childbearing age in the municipality of Santa Cruz do Sul is that of white women, aged between 40 and 49 years, having 8 to 11 years of schooling, who worked and lived in the urban area. The main cause of mortality was neoplasm, especially lung bronchi.

The data of this research show the relevance of continuously investigating the causes of female mortality in childbearing age, because, thus, aspects related to the vulnerability of this population would be better evidenced, contributing to the qualification of care. In this sense, the discussions developed based on death certificates indicate the need to expand access to health services both in the urban area and rural area, as well as the importance of investing in women's health promotion and cancer prevention, especially the bronchi and lungs.

The fact that breast neoplasm and cervix neoplasm appear in second and third place, respectively, being a data that differs from other regions of the country, may configure that the municipality studied performs a good work in this area, with prevention measures and emphasizing the importance of routine tests for women's health. However, these are preventable causes, which still affect a significant number of women, and, in this sense,

health care needs to continue to advance.

Working with health promotion is also important, stimulating healthy lifestyle habits in communities, smoking cessation and dissemination of information on women's health care. Guidance and surveillance on the correct use of PPE, in the areas of tobacco cultivation and in the tobacco industries, can contribute to the reduction of the development of the neoplasm of the bronchi and lungs and mortality as a result of them. We expect our study to broaden the discussion on the themes that involve the mortality rates of women of childbearing age.

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AUTHORS' CONTRIBUTION

Milena Klix de Abreu Pereira was responsible for the preparation and design of the article, collection, analysis and interpretation of the data and discussion, writing and revision of the first version of the manuscript.

Vera Elenei da Costa Somavilla was responsible for data interpretation, discussion, writing and review of the article.

All authors declare to be responsible for all aspects of the study, ensuring its accuracy and completeness.