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Basic conditions and self-care requirements (Dorotea Orem) for breast cancer prevention in women in a municipality of Nariño, Colombia

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Abstract

The study aimed to describe the basic conditions necessary for universal self-care and development in women in a Nariño municipality to prevent breast cancer. The method employed was a relational and cross-sectional design. The random sample consisted of 165 women. Information was collected using the free version of the Orem assessment instrument, and the data were analyzed with SPSS version 21. The results highlight some basic conditioning factors. Among them are that most women are adults and that their family, sociocultural system, and life pattern support disease prevention. The universal self-care requirements mainly relate to environmental factors, activity, rest, and social interactions. Most developmental self-care requirements include having a pet, avoiding exposure to smoke, attending the health center, performing breast

Article result of the research entitled: *Factores condicionantes básicos y familiares que están relacionadas con los requisitos de autocuidado universal y de desarrollo según D. Orem para la prevención del cáncer de mama en mujeres en el municipio de Nariño (N) 2023-2024*.

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self-examinations, not smoking, not drinking alcohol, experiencing menarche before age 12, not using oral contraceptives, and maintaining a normal weight. The statistical relationship was $p<0.05$ for the following conditioning factors: marital status, family communication, religion, and place of residence, regarding the developmental self-care requirement entitled *Attendance at the Health Center*. The basic conditioning factor 'Family communication' was related to the developmental self-care requirement: *Performance of breast self-examination*. The basic conditioning factor 'Place of residence' was related to the developmental self-care requirement: *Exposure to smoke from firewood*. Finally, the basic conditioning factor 'Religion' was related to the universal self-care requirement: *Doing sports*. In conclusion, although family background is a strong conditioning factor, there are self-care possibilities that favor prevention.

Keywords: breast cancer; self-care; breast; primary prevention; risk; health

Condicionantes básicos y requisitos de autocuidado (Dorotea Orem) para prevención del cáncer de mama en mujeres de un municipio nariñense

Resumen

El objetivo del estudio consistió en describir factores condicionantes básicos relacionados con los requisitos de autocuidado universal y del desarrollo en mujeres de un municipio nariñense para prevenir cáncer de mama. El método utilizado fue relacional y transversal. La muestra fue aleatoria conformada por 165 mujeres. Para la recolección de la información, se aplicó el instrumento de valoración de Orem versión libre; los datos se analizaron en el programa SPSS versión 21. Los resultados señalan algunos de los condicionantes básicos, entre ellos: la mayoría se encuentra en la adultez; su sistema familiar, sociocultural y patrón de vida favorecen la prevención de la enfermedad. Entre los requisitos de autocuidado universal se encuentran los siguientes: la mayoría refiere factores ambientales, actividad-descanso e interacción social, y entre los requisitos de autocuidado del desarrollo: la mayoría refiere tener algún animal doméstico, no tiene exposición al humo, asiste al centro de salud, se realiza el autoexamen de mama, no fuma, no ingiere licor, menarca antes de los 12 años, no consumo de anticonceptivos orales y cuenta con un peso normal. La relación estadística fue de $p<0,05$ de los siguientes factores condicionantes: estado civil, comunicación familiar, religión y lugar de residencia con el requisito de autocuidado del desarrollo denominado: *Asistencia al centro de salud*. El factor condicionante básico comunicación familiar se relacionó con el requisito de autocuidado del desarrollo denominado: *Realización del autoexamen de seno*. El factor condicionante básico lugar de residencia se relacionó con el requisito de autocuidado del desarrollo denominado: *La exposición al humo (leña)*. Finalmente, el factor condicionante básico religión tuvo relación con el requisito

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de autocuidado universal denominado: *Realizar deporte*. En conclusión, se puede afirmar que el antecedente familiar en primer grado es un condicionante fuerte, pero también existen posibilidades de autocuidado que favorecen la prevención.

Palabras clave: cáncer mamario; autocuidado; mama; prevención primaria; riesgo; salud

Condições básicas e requisitos de autocuidado (Dorotea Orem) para a prevenção do câncer de mama em mulheres de um município de Nariño, Colômbia

Resumo

O objetivo do estudo foi descrever as condições básicas necessárias para o autocuidado universal e o desenvolvimento de mulheres em um município de Nariño para prevenir o câncer de mama. O método utilizado foi relacional e transversal. A amostra aleatória foi composta por 165 mulheres. As informações foram coletadas usando a versão gratuita do instrumento de avaliação Orem, e os dados foram analisados usando o programa SPSS versão 21. Os resultados apontam alguns dos fatores condicionantes básicos. Entre eles estão o fato de que a maioria das mulheres é adulta e que sua família, sistema sociocultural e padrão de vida favorecem a prevenção de doenças. Os requisitos universais de autocuidado estão relacionados principalmente a fatores ambientais, atividade, descanso e interações sociais. A maioria dos requisitos de autocuidado para o desenvolvimento inclui ter um animal de estimação, evitar a exposição à fumaça, ir ao posto de saúde, fazer o autoexame das mamas, não fumar, não beber álcool, ter menarca antes dos 12 anos, não usar anticoncepcionais orais e manter um peso normal. A relação estatística foi de $p<0,05$ para os seguintes fatores condicionantes: estado civil, comunicação familiar, religião e local de residência, em relação ao requisito de autocuidado do desenvolvimento intitulado 'Comparecimento ao Centro de Saúde'. O fator condicionante básico 'Comunicação familiar' foi relacionado ao requisito de autocuidado de desenvolvimento 'Realização do autoexame das mamas'. O fator condicionante básico, 'Local de residência' estava relacionado ao requisito de autocuidado no desenvolvimento: *Exposição à fumaça de lenha*. Por fim, o fator condicionante básico 'Religião' foi relacionado ao requisito de autocuidado universal: *Praticar esportes*. Em conclusão, embora o histórico familiar seja um forte fator condicionante, há possibilidades de autocuidado que favorecem a prevenção.

Palavras-chave: câncer de mama; autocuidado; mama; prevenção primária; risco; saúde

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Introduction

Cancer is a global public health problem. By 2020, it accounted for one-quarter of new cases worldwide. In Latin America and the Caribbean, the proportion of women under 50 affected by cancer was nearly twice that in North America (Pan American Health Organization [PAHO] & World Health Organization [WHO], n.d.). Although the disease affects both women and men, the incidence rate in men is much lower (Ortiz-Montalvo et al., 2023).

In Colombia, 10 out of every 100,000 people have this disease. By 2022, there were 17,018 new cases reported among the 2,296,840 total cases worldwide. The adjusted mortality rate showed a slight increase from 2005 onwards, remaining stable over the last five years (Ministerio de Salud y Protección Social, 2015).

According to the study by Yépez et al. (2022), the overall incidence of cancer in Nariño from 2023 to 2017 was 3,759 cases: There were 1,608 cases in men (an age-standardized rate (ASR) of 169.4 cases per 100,000 man-years) and 2,151 cases in women (an ASR of 176.6 cases per 100,000 woman-years). Breast cancer is among the most common tumors in women, accounting for 19.7% of cases, and has a higher mortality rate (12.2%) than stomach and cervical cancer (Yépez et al., 2022).

Regarding the geographical distribution in Nariño, the problem is most prevalent in the central subregion, which includes the municipalities of Pasto and Nariño, among others. In the municipality of Nariño, there were 60.2 new cases among women per 100,000 people in 2021 (Instituto Departamental de Salud de Nariño, 2023).

It is important to note that breast cancer is multifactorial. Endocrine-reproductive factors include the use of hormonal contraceptives and hormone therapy, as well as endogenous estrogen levels, obesity, age at menarche, late menopause, breastfeeding, number of children, and age at first pregnancy. One environmental risk factor is exposure to ionizing radiation. Biological factors include family medical history, age, and gender. There is also a group of lifestyle risk factors that are no less important, including excessive tobacco or alcohol consumption, lack of physical activity, and poor diet. It should be noted that this type of cancer is greatly affected by healthy lifestyle choices (García et al., 2017).

In her theory on self-care, Dorothea Orem defines the term as «the set of intentional actions that a person performs to control internal or external factors that may compromise their life or future development» (Prado et al., 2020, p. 841). Self-care is the behavior of caring for oneself. One assumption that follows is that everyone can care for themselves. This self-care is learned mainly through communication in interpersonal relationships throughout life (Marcos & Tizón, 2013). In this sense, people who want to lead healthy lifestyles should consider health information, as it contributes to physical and emotional well-being.

The following concepts derive from this theory:

Basic Determining Factors (BDFs) refer to a series of internal and external variables that modify the ability to perform self-care in terms of quality and quantity. Therefore, BDFs can affect people's lives, health, and development. Identified in 1958, these factors were not listed by the Nursing Development Conference Group until the early 1970s. The BDFs proposed by Orem are not absolute and can be modified when new factors are identified (Ruiz et al., 2019). The following FCBs are included in this study:

- Related to the person's evolutionary period: age, stage of development, marital status.
- Related to the family system: marital status, family characteristics, children, family communication, support person, family history.
- Related to the sociocultural system: place of residence, race, religion, educational level, job, type of employment relationship, socioeconomic status.

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- Related to lifestyle: eating and drinking habits, hygiene and personal care, interpersonal and social relationships, stress and anxiety management, personal beliefs and values.

Other terms used in her theory include the so-called "self-care requirements". A 'requirement' is defined as an activity that a person must perform to take care of themselves. Orem proposes three types of requirements. Two types were considered for the study, and self-care requirements in health deviations were excluded because they apply to people with illnesses or medical diagnoses. Therefore, they are equivalent to specific care according to pathology (Marcos & Tizón, 2013).

Universal self-care requirements refer to the care all human beings must maintain for their overall well-being. These requirements include factors related to the environment (use of public services), activity and rest (sleep and rest habits, hours slept, physical activity, and exercise), and solitude and social interaction (belonging to a social group, communicating with one's environment, and customs) (Marcos & Tizón, 2013).

Self-care requirements for development are the conditions necessary for life and maturation. These conditions mitigate the effects of various situations at different stages of human development, including childhood, adolescence, maturity, and old age (Marcos & Tizón, 2013). Self-care is inherent in the implementation of healthy lifestyles and activities that prevent disease. These include living with animals, exposure to toxins (e.g., smoke), visiting health centers, performing breast self-examinations, getting mammograms, smoking, consuming alcohol, experiencing menarche and menopause, and maintaining a healthy body weight.

With the clarity provided by Dorothea Orem's theory, this study enables us to deduce that Orem's nursing language, referring to basic health determinants, has an equivalent in epidemiological language. In the health-illness process, these determinants are called 'social determinants of health'.

In light of this situation, the study aimed to describe and relate the FCBs and self-care requirements outlined by Dorothea Orem to breast cancer prevention among women in a municipality in Nariño.

Methodology

A relational and cross-sectional study exploring and describing the statistical relationship between FCB and the universal self-care and developmental requirements proposed by Dorothea Orem, applied to the topic of breast cancer prevention.

The study population consisted of 2,200 women from urban and rural areas of the municipality under study, of whom 1,726 were over 18 years of age (Alcaldía Municipal de Nariño, 2022).

The sample was calculated with a confidence level of 93%, positive variability of 0.5, negative variability of 0.5, and an error rate of 7%. Finally, 165 women were included in the study.

Inclusion Criteria

- Women residing in the municipality of Nariño.
- Women without a medical diagnosis of breast cancer.
- Women who sign the informed consent form and agree to participate in the study.

Exclusion Criteria

- Women who are pregnant.

Type of sampling

Consecutive; that is, women were recruited by verbal invitation during market days in the municipality under study, until the sample was complete. To collect the information, the assessment guide based on Dorotea Orem's general theory of self-care, by López and Moreno (2010), freely available online, was used.

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The research authors created the assessment guide to provide greater clarity. The data obtained were organized and tabulated in an Excel database created specifically for the research and then exported to SPSS version 21. Univariate analysis was performed, followed by bivariate analysis between the variables cited. For the statistical relationship, the Chi-square test statistic was used, and a p-value <0.05 was accepted as significant.

The study was approved at a regular meeting of the CIPRO Nursing Program Research Committee. Informed consent was obtained, which includes respect for bioethical principles in research and respect for human dignity. According to Resolution 8430 of 1993, the research was classified as non-risk research.

Results

The largest proportion of women are between the ages of 30 and 39, representing 46.7% (77); 80% (132) are adults; in terms of marital status, 38.2% are married (63); 87.3% belong to a nuclear family (144); of this percentage, 46.1% have between one and two children (76); 95.2% reported that their family communication was excellent or good (157); 36.4% receive support from their husband (60). Regarding family history of breast cancer, 78.8% reported having it (130). 61% live in urban areas (101); 58% are of mixed race (96), and 71% are Catholic (117 women).

In terms of educational level, 38.2% have completed high school (63 women), and 85% are employed (140). Of those employed, 53% are self-employed (87). 63% belong to the socioeconomic stratum 1 (104). Regarding eating and drinking habits, 50% consider theirs to be good (83), and 54.5% report having good hygiene and personal care (90). 78.8% say that they have good interpersonal and social relationships (130). 76.4% say that they manage their stress and anxiety (126). Finally, 81.8% consider personal beliefs and values important (135 women) (see Table 1).

Table 1

Basic determining factors in women in the municipality of Nariño 2024 n= 165

Determining factors D. Orem	Variable	Category	%
Personal evolutionary timeline	Age	20 to 29 years old	28,5
		30 to 39 years old	46,7
		40 to 49 years old	21,2
		Over 50	3,6
	Development status	Young adult	20
		Adult	80
Family system	Marital status	Single	31,5
		Married	38,2
		Common-law marriage	28,5
		Widow	1,8
	Family characteristics	Nuclear family	87,3
		Extended family	12,7

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Determining factors D. Orem	Variable	Category	%
Family system	Children	0	26,6
		1-2 children	46,1
		More than 2 children	27,3
	Family communication	Excellent	75,2
		Good	20
		Regular	4,8
	Supportive person	Husband	36,4
		Child	19,4
		Parents	26,1
		Other	18
	Family history of the disease	Yes	78,8
		No	21,2
Sociocultural system	Place of residence	Rural	39
		Urban	61
	Race	Mestizo	58
		White	33,3
		Black	1,2
		Afro-Colombian	7,9
	Religion	Profess	97,1
		Not profess	3,0
	Educational level	Primary	15
		High school	38,2
		Technical or technological degree	34
		University degree	12,1
		None	1,2
	Work	Yes	85
		No	15
	Type of employment relationship	Employee	47
		Independent worker	53
	Socioeconomic status	Status 1	63
		Status 2	33
		Status 3	3,6
Lifestyle	Eating and hydration habits	Good	50
		Fair	28,5
		Poor	21,8

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Determining factors D. Orem	Variable	Category	%
Lifestyle	Hygiene and personal care	Good	54,5
		Fair	21,2
		Poor	24,2
	Interpersonal and social relationships	Good	78,8
		Fair	10,3
		Poor	11
	Stress and anxiety management	Yes	76,4
		No	23,6
	Personal beliefs and values	Very important	81,8
		Moderately important	9,1
		Not very important	9,1

Among the universal self-care practices that promote health, 76.6% of women (126) use all public services; 98.78% (163) sleep and rest for more than eight hours; 68.49% (113) practice physical activities, exercise, or play sports; 70.90% (117) do not belong to any social group, and 91.5% (151) consider themselves to have good or excellent communication with the people around them. Among their habits, cooking was the most popular activity, with 44.84% of women reporting it as their favorite (see Table 2)

Table 2

Universal self-care requirements in breast cancer prevention among women in the municipality of Nariño 2024 n = 165

Variable		Category	%
Environmental factor	Public Services	Yes	76,6
		No	23,4
Activity and rest	Sleep and rest habits	Yes	98,8
		No	1,2
	Number of hours slept per day	>8 hours	99
		<8 hours	1
	Physical activities and exercise	Yes	68,5
		No	31,5
	Practicing a sport	Yes	68,5
		No	31,5
Loneliness and social interaction	Belonging to a social group	Yes	29
		No	71
	Women's communication with their environment	Excellent, Good	91,5
		Fair, Poor	8,5

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Variable		Category	%
Loneliness and social interaction	Women's customs	Cooking	44,8
		Going to church	33,9
		Other (walking, exercise)	21,2

68.5% reported having some type of domestic animal —cat, dog— (113 women); 55.2% reported no exposure to smoke (91); 76.4% frequently attended the health center (126); 69.1% perform breast self-exams (114); 1.2% undergo mammograms (2); 56.4% do not smoke or drink alcohol (93); 56.4% report having had their first menstruation before the age of 12, and 4.8% are already in menopause (8); 92.7% do not take oral contraceptives (153) and 53.4% are of normal weight (88 women) (see Table 3).

Table 3

Percentage distribution of self-care requirements for breast cancer prevention among women in the municipality of Nariño 2024 n = 165

Self-care requirements for development		
Variables	**Category**	**%**
Living with animals	Yes	68,5
	No	31,5
Exposure to smoke (cooking with wood)	Yes	44,8
	No	55,2
Visits to the health center	Yes	76,4
	No	23,0
Breast self-examination	Yes	69,1
	No	31
Mammogram	Yes	1,2
	No	98,8
Smoking	Yes	12,1
	No	87,9
Alcohol consumption	Yes	22
	No	81,8
Reproductive history: Age at menarche	<12 years old	56,4
	>12 years old	43,6
Reproductive history: Menopause	Yes	4,8
	No	95,2
Reproductive history: Oral contraceptive use	Yes	7,3
	No	92,7

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Self-care requirements for development		
Variables	**Category**	**%**
Weight: Body mass index (BMI)	Normal	53,4
	Overweight-obesity	46,6

A statistical relationship of $p<0.05$ was observed when crossing the implicit variables 'Universal self-care requirements' and 'Development self-care requirements' of the FCBs of the surveyed women in the following aspects: marital status, intra-family communication (good and excellent), religion, and urban residence. These aspects are also related to frequent visits to a health center. Good and excellent intra-family communication is related to performing breast self-exams. Living in an urban area is connected to not being exposed to smoke from cooking with firewood. Practicing a religion was linked to participating in sports.

Table 4

Basic conditioning factors, universal development requirements, and development requirements that showed statistical correlation

Basic Conditioning Factors	Universal self-care or developmental requirements	P value*
Marital status (married, common-law marriage)	Attendance at a health center	0,036
Family communication (good and excellent)	Attendance at a health center	0,007
Practicing a religion	Attendance at a health center	0,003
Living in an urban area	Attendance at a health center	0,007
Family communication (good and excellent)	Breast self-examination	0,006
Living in an urban area	No exposure to smoke (wood-burning stove)	0,011
Practicing a religion - playing sports	Playing sports	0,017

* chi-square test

Discussion

The study examined the basic health determinants of a group of women from a municipality in Nariño and their statistical relationship with the universal self-care and development requirements proposed by Orem's theory for breast cancer prevention.

Considering the basic conditioning factors of the women who participated in the study, who reported being free of breast cancer as they do not have a medical diagnosis of this type and whose ages are between 30 and 39 years old, the risk in them is low. However, the risk changes in cases where there is a family history. The study found that 78.8% of participants had a family history of breast cancer in a first-degree relative, such as a mother, sister, or daughter.

Some studies report that a first-degree consanguineous family history increases the risk of developing the disease by 1.8 times (Jacobo-Galindo et al., 2014), a situation that must be addressed when discussing prevention, given that only a low percentage of participating women have had

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a mammogram, specifically women over 50 years of age. Mammograms can facilitate early diagnosis, and lack of awareness hinders opportunities for cure (Obregón et al., 2024).

This study reported that a significant percentage of women (69.1%) perform breast self-exams as an appropriate practice for detecting lesions. These practices lead them to consult and attend health centers not only when they feel ill, but also as a preventive measure (76.4%).

Although marital status is reported as a protective factor thanks to social support and reinforcement of healthy habits, several studies report high percentages of women who developed breast cancer despite being married. In this context, social support for married women and women in open union, especially when accompanied by positive family relationships, promotes good preventive practices. This is evident through its statistical relationship with frequent health center visits (p=0.007) and breast self-exams (p=0.006). This factor could positively influence their preventive practices against breast cancer. Married women and those in stable relationships are more likely to get regular checkups than single women or those in less supportive family environments. This was shown in a study in Spain, in which 72% of married women regularly undergo mammograms, compared to 60% of single women who do not undergo these tests (Asociación Española Contra el Cáncer, 2023). This difference may be related to the emotional and financial support that being in a relationship provides, which makes it easier to access medical services and encourages greater participation in preventive programs.

Orem points out that people are responsible for maintaining their health and well-being. For her, self-care begins with awareness; there must be a desire to be well and to follow through with a plan. Orem (as cited in Naranjo et al., 2017) states that people with greater knowledge and self-care skills tend to make more informed decisions about their health. This is reflected among women with higher levels of education. In this study, 38.1% of participants had at least a high school education and were more likely to engage in preventive practices, such as mammograms and breast self-examinations (Castillo et al., 2016). Similarly, 69.1% of participants reported performing breast self-examinations.

According to Obregón et al. (2024), the number of children is a protective factor for breast cancer. In this study, most women have between one and two children (46.1%).

A large percentage of women identify with some form of religion. While religion itself may not influence breast cancer prevention practices, it can act as a motivating agent given that most religions encourage healthy habits such as exercise and avoiding alcohol and smoking (Requejo-Mas et al., 2023). In this case, there is a statistical relationship between religion and sports participation (p = 0.017).

In terms of place of residence, 61% of women live in urban areas, which provides easier access to health services, health centers, parks, and other places that encourage sports. Living in scattered and remote areas has been considered a factor that contributes to disease development and hinders prevention (Cordero, 2021). This study revealed statistical relationships between living in an urban area and attending a health center (p=.003) and between living in an urban area and participating in sports (p=.017).

Similarly, living in an urban area provides easier access to public services, such as natural gas and electricity. In contrast, families in rural areas must find alternative ways to obtain energy, especially for cooking, such as using firewood.

A study conducted in an area of China with high breast cancer prevalence in 2024 examined the relationship between drinking water properties and breast cancer, focusing on the toxicity of the contaminants present in the water. The study found a correlation between high levels of cancer and mortality and contaminants in the water, composed of organic matter from human waste. This matter includes oxidative

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substances that promote cancer cell growth and particles that contribute to cancer-related mortality (Peng et al., 2024).

Another study indicates that certain non-tuberculous bacteria present in treated sewage may carry pathogens that travel through the immune system and promote the development of breast tumors. These microbes are associated with breast cancer and are considered a risk factor, particularly for older women. Therefore, drinking water quality must be monitored to prevent potential health risks (Maranha et al., 2024). This shows how important access to public services, especially drinking water, is. In this study, a large percentage of women (76.6%) considered these services to be protective factors. According to Dorothea Orem's self-care theory, access to drinking water is a fundamental requirement for self-care and health promotion.

Sleep plays a key role in preventing breast cancer. Sleep deprivation —generally defined as getting less than seven hours of sleep per night— has been associated with an increased risk of obesity and metabolic syndrome. These are factors that contribute to the development of various types of cancer, including breast cancer (Santisteban, 2019). Additionally, lack of sleep can cause an increase in stress hormone levels and inflammation in the body, both of which have been linked to an increased risk of cancer. Maintaining a healthy sleep pattern helps with weight management and promotes an active, healthy lifestyle, which is crucial for cancer prevention (Santisteban, 2019). It should be noted that adequate rest is practiced in this study.

According to Dorothea Orem's self-care theory, sleep is essential for maintaining women's health and well-being. Orem argues that self-care involves the knowledge and practice of activities that promote health and prevent disease. In this context, adequate sleep is crucial not only for physical health but also for mental and emotional well-being. Research indicates that sleep deprivation is associated with increased inflammation and hormonal disturbances, which can facilitate disease progression, including cancer (González et al., 2019).

Regular physical exercise is an effective self-care strategy for reducing breast cancer risk in women. This protective effect has been observed in premenopausal and postmenopausal women alike (Oliva et al., 2015). This suggests that physical activity has a positive impact regardless of the stage of life. It contributes to hormone level regulation and reduces risk factors associated with adiposity, both of which are essential to preventing breast cancer. The World Health Organization (WHO, 2024) recommends that adults engage in at least 150 minutes of moderate-intensity physical activity per week, including women. 31.5% of women never engage in such activity, which is a worrying figure as a sedentary lifestyle is associated with breast cancer.

Several studies have reported that exposure to cigarette smoke increases the risk of developing cancer, including breast cancer. Cigarette smoke contains more than 70 carcinogenic substances, such as polycyclic aromatic hydrocarbons (PAHs) and nitrosamines, which can induce DNA mutations. These mutations increase the risk of developing breast cancer (Osorio, 2020). Women who are exposed to «secondhand smoke» are also at a higher risk of developing this disease and others, especially if the exposure is prolonged (Narváez-Eraso, et al., 2019; Narváez-Eraso & Díaz-Delgado, 2019). Although 87.9% of the women in this study do not smoke, a significant proportion (44.8%) is exposed to smoke from cooking fires. This smoke contains toxins, including carbon monoxide, fine particles, and PAHs. These substances are similar to those found in tobacco smoke and have been linked to an increased risk of breast cancer.

As for living with animals, although the relationship between them and breast cancer is unclear, there are no studies suggesting a risk or protective relationship in this regard.

Among the requirements for healthy development, late onset of menstruation (after age 15) was considered because late

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menarche appears to protect against breast cancer risk. Several studies have shown that early menarche increases the risk of breast cancer by almost six times compared to those who experienced late menarche. These studies also indicate that shorter exposure to estrogen reduces stimulation of breast tissue and decreases the likelihood of cellular changes that can lead to cancer (Hierrezuelo et al., 2023). The risk of breast cancer associated with early menarche may be amplified in obese women or those with hormonal risk factors, such as prolonged contraceptive use. In the present study, 43.63% of women experienced menarche after age twelve, and few used oral contraceptives.

Body mass index (BMI) is a crucial indicator for assessing breast cancer risk, particularly among postmenopausal women. The increased risk is attributed to the hormonal environment promoted by obesity, which is characterized by elevated estrogen and other growth factor levels produced by adipose tissue that favor tumor proliferation (Hierrezuelo et al., 2023). This study found that 46.61% of women were obese or overweight.

Conclusions

According to Orem's classification, the study identified basic conditioning factors in the female participants that provide some protection against breast cancer. However, when designing health education and promotion strategies, it is important to consider risk factors. Furthermore, a significant percentage of participants have a family history of the disease.

Similarly, self-care requirements were identified that manifest as protective practices. These practices should be encouraged and reinforced during health center visits and extramural activities. Therefore, interventions that promote women's health empowerment are essential. These interventions should provide tools and skills that enable women to maintain, preserve, or adopt a healthy lifestyle, thereby reducing their risk of developing cancer.

Conflict of interest

The authors declare that they have no conflicts of interest: financial, political, intellectual, racist, religious, or of any other kind.

Ethical Responsibilities

According to Resolution 8430 of 1993, the research was classified as risk-free and approved by the Research Committee of the Universidad Mariana's Nursing Program in the Faculty of Health Sciences. The women participated voluntarily after receiving information about the study and signing an informed consent form that outlined its purpose, as well as the measures taken to ensure confidentiality and protect data.

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References

Alcaldía Municipal de Nariño. (2022). Análisis de la situación de salud. Municipio de Nariño, año 2022 [Health situation analysis. Municipality of Nariño, year 2022]. https://alcaldia-municipal-de-narino-en-narino.micolombiadigital.gov.co/noticias/analisis-de-la-situacion-de-salud-municipio-de-narino-888842

Asociación Española Contra el Cáncer. (2023). Cáncer de mama [Breast cáncer]. https://www.contraelcancer.es/es/todo-sobre-cancer/tipos-cancer/cancer-mama

Castillo, I., Bohórquez, C., Palomino, J., Elles, L., & Montero, L. (2016). Conocimientos, actitudes y prácticas sobre el autoexamen de mama en mujeres del área rural de Cartagena [Knowledge, attitudes, and practices on the breast self-examination in women of the rural area of Cartagena]. *Revista U.D.C.A Actualidad & Divulgación Científica, 19*(1), 5-14. https://doi.org/10.31910/rudca.v19.n1.2016.105

Revista Criterios - vol. 32 n.º 2 Julio-Diciembre 2025 - pp. 12-27
Rev. Criterios ISSN: 0121-8670, e-ISSN: 2256-1161
https://doi.org/10.31948/rev.criterios

Cordero, R. A. (2021). Accesibilidad a los servicios de salud en zonas rurales. Una mirada a las estrategias comunitarias de autosuficiencia en Pozo del Castaño, Santiago del Estero [Accessibility to health services in rural areas. A look at community strategies for selfsufficiency in Pozo del Castaño, Santiago del Estero]. *Trabajo y Sociedad*, *22*(37), 589-617.

García, A., Rubio, T., Verdecia, M., & Domínguez, A. (2017). Evaluación de factores de riesgo asociados al cáncer de mama en Alayón, Venezuela [Evaluation of risk factors associated with breast cancer in Alayón, Venezuela]. *Revista Cubana de Genética Comunitaria, 11*(2), 38-45. https://revgenetica.sld.cu/index.php/gen/article/view/36

González, G., Peralta, O., & De la Rosa, D. J. (2019). Impacto de una intervención educativa en el conocimiento del cáncer de mama en mujeres colombianas [Impact of an educational intervention on the knowledge of breast cancer in Colombian women]. *Revista Cubana de Salud Pública, 45*(3), e1157. https://revsaludpublica.sld.cu/index.php/spu/article/view/1157

Hierrezuelo, N., Cordoví, M., & Neira, N. (2023). Factores de riesgo asociados al cáncer de mama en mujeres de un área de salud [Risk factors associated with breast cancer in women in a health area]. *Revista Finlay*, *13*(4), 414-424. http://scielo.sld.cu/pdf/rf/v13n4/2221-2434-rf-13-04-414.pdf

Instituto Departamental de Salud de Nariño. (2023). Análisis de la situación en salud. Departamento de Nariño ASIS 2023 [Analysis of the health situation. Department of Nariño ASIS 2023]. https://www.idsn.gov.co/publicaciones/2087/asis/

Jacobo-Galindo, T., Villalobos-Arámbula, L., Gallegos-Torres, A. S., Xeque-Morales, B., Reyes-Rocha, B., & Palomé-Vega, G. (2014). Patrones de comportamiento para la detección de CA mamario en trabajadoras de una institución hospitalaria [Behavioral patterns in breast cancer early detection among workers in a hospital institution]. *Enfermería Univesitaria, 11*83), 101-109. https://doi.org/10.1016/S1665-7063(14)72673-9

López, M. C., & Moreno, N. E. (2010). Construcción de instrumentos para realizar el proceso de enfermería basado en la teoría general de Orem [Construction of instruments to carry out the nursing process based on Orem's general theory]. *Desarrollo Científico de Enfermería, 18*(3), 135-140. https://www.index-f.com/dce/18pdf/18-135.pdf

Maranha, A., Alarico, S., Nunes-Costa, D., Melo-Marques, I., Roxo, I., Castanheira, P., Caramelo, O., & Empadinhas, N. (2024). Drinking water microbiota, entero-mammary pathways, and breast cancer: Focus on nontuberculous mycobacteria. *Microorganisms, 12*(7), 1425. https://doi.org/10.3390/microorganisms12071425

Marcos, M. P., & Tizón, E. (2013). Aplicación del modelo de Dorothea Orem ante un caso de una persona con dolor neoplásico [Application of Dorothea Orem's model in a case of a person with neoplasic pain]. *Gerokomos*, *24*(4), 168-177. https://dx.doi.org/10.4321/S1134-928X2013000400005

Ministerio de Salud y Protección Social. (2015, October 16). "El 30 % del cáncer se puede evitar con el autocuidado" ["30% of cancers can be prevented through self-care"]. *Boletín de Prensa,* (275). https://www.minsalud.gov.co/Paginas/El-30-del-c%C3%A1ncer-se-puede-evitar-con-el-autocuidado-ViceSalud.aspx

Revista Criterios - vol. 32 n.º 2 Julio-Diciembre 2025 - pp. 12-27
Rev. Criterios ISSN: 0121-8670, e-ISSN: 2256-1161
https://doi.org/10.31948/rev.criterios

Naranjo, Y., Concepción, J. A., & Rodríguez, M. (2017). La teoría Déficit de autocuidado: Dorothea Elizabeth Orem [The self-care deficit nursing theory: Dorothea Elizabeth Orem]. *Gaceta Médica Espirituana*, *19*(3), 89-100. https://revgmespirituana.sld.cu/index.php/gme/article/view/1129

Narváez-Eraso, C. O., & Díaz-Delgado, A. E. (2019). *Enfermedad coronaria: dos riesgos que toda mujer puede evitar* [Coronary heart disease: two risks that every woman can avoid]. Editorial Unimar. https://libros.umariana.edu.co/index.php/editorialunimar/catalog/book/96

Narváez-Eraso, C. O., Díaz-Delgado, A. E., & Berbesi, D. Y. (2019). Características socioculturales y de salud asociadas a enfermedad coronaria en mujeres. Estudio caso-control [Sociocultural and health characteristics associated with coronary heart disease in women. Case-control study]. *Revista Cuidarte, 10*(3), e856. https://doi.org/10.15649/cuidarte.v10i3.856

Obregón-Sánchez, N. H., Moreno-González, M. M., Guzmán-Ortiz, E., Trujillo-Hernández, P. E., & Lara-Reyes, B. J. (2024). Factores de riesgo del cáncer de mama en mujeres con antecedentes hereditarios. Revisión integrativa [Risk factors for breast cancer in women with a family history. Integrative review]. *Revista Científica Salud Uninorte, 40*(1), 273–294. https://doi.org/10.14482/sun.40.01.741.258

Oliva, C. A., Cantero, H. A., & García, J. C. (2015). Dieta, obesidad y sedentarismo como factores de riesgo del cáncer de mama [Diet, obesity and sedentary lifestyle as risk factors for breast cancer]. *Revista Cubana de Cirugía*, *54*(3), 274-284. http://scielo.sld.cu/pdf/cir/v54n3/cir10315.pdf

Pan American Health Organization (PAHO) (s.f.). Actividad física [Physical activity]. https://www.paho.org/es/temas/actividad-fisica

Pan American Health Organization (PAHO) & World Health Organization (WHO). (n.d.). Breast Cancer. https://www.paho.org/en/topics/breast-cancer

Prado, L. A., González, M., Paz, N, & Romero, K. (2020). La teoría Déficit de autocuidado: Dorothea Orem punto de partida para calidad en la atención [The theory Deficit of selfcare: Dorothea Orem, starting-point for quality in health care]. https://1library.co/document/myjx15pz-teora-dficit-autocuidado-dorothea-orem-partida-calidad-atencin.html

Ortiz-Montalvo, Y. J., Vega-Tapia, D. C., Gonzales-Paredes, M. C., & Ortiz-Romaní, K. J. (2023). Conocimiento asociado a la práctica preventiva del cáncer de mama en estudiantes de enfermería [Knowledge associated with the preventive practice of breast cancer in nursing students]. *Horizonte Sanitario, 22*(2), 297-304. https://doi.org/10.19136/hs.a22n2.5466

Osorio, N., Bello, C., & Vega, L. (2020). Factores de riesgo asociados al cáncer de mama [Risk factors associated with breast cancer]. *Revista Cubana de Medicina General Integral, 36*(2), e1147. https://revmgi.sld.cu/index.php/mgi/article/view/1147

Peng, S., Dong, S., Gong, C., Chen, X., Du, H., Zhan, Y., & Ye, C. (2024). Identification of breast-cancer-associated properties of drinking water under a composite-toxicity perspective of mixed contaminants: A case study in a high-prevalence area of China. *Water, 16*(5), 702. https://doi.org/10.3390/w16050702

Requejo-Mas, A. L., Bustamante-Bustamante, E. L., & Silva-Díaz, H. (2023). Actitudes y prácticas preventivas contra el cáncer mamario en madres de un colegio de Tumán, Perú, 2022 [Attitudes and preventive practices against breast cancer in mothers of a school in Tuman, Peru, 2022]. *Gaceta Mexicana de Oncología*, *22*(4), 149-156. https://doi.org/10.24875/j.gamo.23000004

Ruiz, L. F., Gordillo, A. M., & Galvis, C. R. (2019). Factores condicionantes básicos en cuidadores informales de pacientes crónicos en el domicilio [Basic conditioning factors in informal caregivers of chronic patients at home]. *Revista Cuidarte, 10*(3), e608. https://doi.org/10.15649/cuidarte.v10i3.608

Revista Criterios - vol. 32 n.º 2 Julio-Diciembre 2025 - pp. 12-27
Rev. Criterios ISSN: 0121-8670, e-ISSN: 2256-1161
https://doi.org/10.31948/rev.criterios

Santisteban, M. (2019). Hábitos de sueño saludable, melatonina y cáncer de mama [Restful sleep, melatonin and breast cancer]. *Anales del Sistema Sanitario de Navarra*, *42*(2), 245-248. https://dx.doi.org/10.23938/assn.0714

World Health Organization (WHO). (2024). Physical Activity. https://www.who.int/news-room/fact-sheets/detail/physical-activity

Yépez, M. C., Bravo, L. M., Jurado, D. M., Mena, J., & Casas, H. M. (2022). Incidencia y mortalidad por cáncer en el municipio de Pasto Colombia, 2013-2017. [Incidence and mortality by cancer in the Pasto municipality, Colombia. 2013-2017]. *Colombia Médica, 53*(1), e2054952. https://doi.org/10.25100/cm.v53i1.4952

Contribution

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Carmen Ofelia Narváez Eraso: Methodology, analysis and interpretation, critical review, and improvements to the article.

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