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A Quantitative and Cross-sectional Study on Knowledge of Breast Cancer among Nursing Interns at a University in Lima, Peru 2024

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ABSTRACT

Background: Breast cancer is one of the most common cancers in the world, improving outcomes requires early identification and awareness. Since nursing interns are essential in educating patients and promoting early screening initiatives, it is critical to evaluate their understanding of breast cancer. **Objective:** Determine the level of knowledge about breast cancer in final-year nursing students at a private university in Lima, 2023. **Methods:** This study has a non-experimental quantitative approach, descriptive and cross-sectional. The population consisted of all IX and X cycle nursing students, totaling 120 students. Sampling was non-probabilistic for convenience. A level of knowledge questionnaire about breast cancer, prepared by the authors, was used, consisting of 26 items. **Results:** Out of the sample, 110 students participated in the study. Of 100% of the students (N=110), 31.8% (N=35) had a low level of knowledge about breast cancer, 39.1% (N=43) had a regular level, and 29.1% (N=32) had a high level of knowledge about breast cancer. **Conclusions:** Nursing students in the IX and X cycles generally have a regular level of knowledge about breast cancer.

Keywords: (DeCS) Breast Neoplasms; Knowledge; Nursing Students

INTRODUCTION

In 2023, a total of 297,790 new cases of breast neoplasia are estimated in this country, representing 15.2% of all new cases diagnosed with cancer, and 43,170 deaths, representing 7.1% of all cancer deaths (National Cancer Institute, 2023). In Latin America and the Caribbean, in 2020, 210,000 new cases of breast cancer were diagnosed and approximately 68,000 deaths, which generally occurred in women under 70 years of age. In America, each year more than 491,000 women are diagnosed with cancer, and approximately 106,391 die; 32% belong to Latin America and the Caribbean. It is estimated that by 2040 the number of diagnosed women will rise by 39% (Pan American Health Organization, 2022).

In Brazil, in 2022, breast cancer was the leading cause of mortality in women in all Brazilian regions except for the northern area. In 2020, a mortality rate of 11.84 per 100,000 women was recorded, with the highest rates in the Southeast (12.64/100,000 women) and South of Brazil (12.79/100,000 women) (National Cancer Institute, 2022). In Argentina, breast neoplasia was the type of cancer with the highest incidence in 2020, unlike other cancers according to the tumor site, with a record of 22,024 cases, representing 16.8% of cancers, with an incidence of 73.1 cases per 100,000 women (National Cancer Institute, 2020).

According to the reports of the National Center for Epidemiology, Prevention and Disease Control (2021) of Peru, 1,824 deaths were recorded due to breast cancer, with a rate of 11.0 deaths per 100,000 inhabitants. Of the women diagnosed, 26% die every year. It is also reported that only 15.5% of women between 30 and 59 years old had their breasts clinically examined, and only 12.8% of women between 40 and 59 years old attended any health facility in 2020 to have a mammogram in the last two years. The level of knowledge about breast cancer is the understanding, set of data, and definitions that a person acquires as a result of their experience or through the educational processes they receive about prevention, clinical symptoms, risk factors, and means of early detection of breast neoplasia (Almeshari *et al.*, 2023).

Breast neoplasia is a pathology in which malignant cells develop in the tissues of this organ. Although this type of cancer is minimally caused by genetic or hereditary factors, there are risk factors that contribute to the development of this disease (American Cancer Society, 2021). There are several types of breast cancer

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classified according to their site or tissue of origin. Ductal cancer develops in the ducts that transport milk to the nipple, lobular cancer originates in the glandular tissue that produces milk, and the less common cancers are those produced by phyllodes tumors and angiosarcoma. Other less common cancers originate in other tissues; these tumors are sarcomas and lymphomas. Many breast cancers cause a lump in this tissue, and the most common cancers are ductal cancers and invasive carcinomas (American Cancer Society, 2021).

Among the signs and symptoms of breast neoplasia are prominences or thickening of the breast, changes in the appearance and symmetry of the affected breast compared to the other, the presence of dimples in the breast epithelium, nipple retraction, peeling of the skin, detachment, redness, and pores (Mayo Clinic, 2022; Basu, 2020). The level or degree of knowledge about the risk factors for breast cancer defines the conditioning agents involved in the development of this neoplasia. The risk factors are responsible for the changes in an event and intervene in it, generating either negative or positive impacts (Delgado-Díaz *et al*., 2020).

According to the risk factors, women are more likely to suffer from the disease. The likelihood increases if the person has a history of breast diseases or has had breast cancer, if they have a family history, or if they have been exposed to radiation. Obesity, early menstruation, having the first child at an advanced age, not having pregnancies, hormone therapies after menopause, and alcohol consumption also increase the risk of breast cancer (Mayo Clinic, 2022). The level or degree of knowledge about breast cancer preventive practices refers to the adequate theoretical and practical understanding of this disease. This knowledge allows women to determine and identify warning signs, abnormal symptoms, etc., benefiting them when they carry out preventive practices such as breast self-examinations, medical consultations, and diagnostic tests. It is important to emphasize that this knowledge allows the disease to be detected early, enabling timely treatment (Delgado-Díaz *et al*., 2020; Saleem, Javed & Ahmad, 2020).

Breast cancer is an aggressive disease and one of the main causes of death in the world and in Peru. Although breast cancer does not specifically have exact causes, it has modifiable risk factors, making it a disease with possibilities for prevention or early detection. For this, it is important to have adequate knowledge to avoid this disease. Health professionals are responsible for health education, but it is nurses who have the special role of being educators. However, they cannot teach aspects they do not know, so it is important that they have adequate knowledge for the benefit of their personal health and the community. Teaching others how to avoid or detect this cancer will benefit public health. The findings will allow for the long-term improvement of health education, both in nursing staff and the women who receive the information, which can help reduce mortality and incidence rates due to this disease.

The objective of the present study will be to determine the level of knowledge about breast cancer in final-year nursing students at a private university in Lima, 2024.

METHODOLOGY

This study consists of a quantitative approach with a non-experimental methodological design, descriptive and cross-sectional. It is descriptive because it details the behavior of the variable in its natural form, non-experimental because there is no manipulation of the variable, and cross-sectional because the measurement of the variable is carried out only once.

Population

The population was made up of all nursing students of the IX and X semester:

Inclusion Criteria

1. Students must be enrolled in cycle IX and X of the professional career in the first semester of 2024.
2. Students must belong to one of the academic shifts, morning or evening.
3. Students who sign the informed consent

Exclusion Criteria

Students who do not wish to be part of the study

Study Variable

The main variable of this research was the level of knowledge about breast cancer.

Conceptual Definition

The level of knowledge about breast cancer refers to the understanding, set of data, and definitions that a person acquires as a result of their experience or through educational processes regarding prevention, signs and symptoms, risk factors, and means of early detection of breast cancer (Milosevic *et al*., 2018).

Operational Definition

The level of knowledge about breast cancer refers to the degree of theoretical notions related to the definition, clinical picture, and preventive measures of this neoplasia. This level of knowledge will be measured through the questionnaire "Level of Knowledge of Breast Cancer."

Research Technique and Instrument

Study Technique

The survey was used as a data collection technique, which took approximately 30 minutes per respondent.

Study Instrument

This instrument consists of 26 items with closed-ended alternatives regarding breast cancer. The evaluation was determined using the Likert scale, where the most correct answers were given a score of 5 and the least correct a score of 1. The total score ranges between 26 and 130 points. The level of knowledge was determined using the Baremo scale, which is distributed into categories according to their score:

Low level: 26 to 84

Regular level: 85 to 97

High level: 98 to 130

The reliability of the instrument was calculated using Cronbach's alpha, obtaining a result of 0.884, which is categorized as "excellent reliability." Content validity was determined through expert judgment. The questionnaire is divided into three dimensions: the first dimension, knowledge about general aspects of breast cancer, covers four items; the second dimension, knowledge of risk factors for breast cancer, addresses 14 items; and the third dimension, knowledge about breast cancer prevention, contains eight items. Each item has four response alternatives, each with a score of:

1 = Strongly disagree

2 = Disagree

3 = Neither agree nor disagree

4 = Agree

5 = Totally agree

Data Collection Plan

Authorization and Prior Coordination for Data Collection

Authorization and prior coordination for data collection were requested, including the number of students meeting the inclusion criteria, as well as the request for authorization to access the population at the University of Sciences and Humanities.

Application of Data Collection Instrument(s)

Data collection took place in 2024 and ran for 30 days. The study's scope was explained to the students, and their informed consent was requested for participation. Completing the questionnaire took approximately 30 to 35 minutes. The instrument was developed in Google Forms and administered virtually. Subsequently, the quality of the responses was evaluated before processing.

Statistical Analysis Methods

Descriptive statistical tools were used. The information was organized in Microsoft Excel, and the data

were exported to the statistical software IBM SPSS Statistics v.25. Statistical analysis was then carried out to obtain values related to the study's objectives and dimensions of the variable. Finally, tables were created to express the most significant results of the study.

Principle of Autonomy

The principle of autonomy involves respecting individuals' rights to make their own decisions, which must be voluntary (Vázquez & Martell, 2020). This principle was applied by obtaining informed consent from participants as a prerequisite for participation in the research.

Beneficence Principle

This principle dictates that doing good is an obligation, and one must act for the benefit of others (López & Zuleta, 2020). The principle was applied by informing participants of the benefits of responding to the research instrument and sharing the research results.

Principle of Non-Maleficence

This principle means "first of all, do no harm" and refers to the obligation to do good or at least not cause harm (Borges *et al*., 2021). The research was anonymous, and the information collected was used solely for research purposes.

Principle of Justice

This principle focuses on treating research participants without discrimination to ensure beneficence (Huanca & Barria, 2022). All students had equal opportunity to participate and were treated without distinction.

Ethical Consideration

The study was approved by the Ethics Committee of the University of Sciences and Humanities, Peru with reference number ACTA CEI No. 076 under Code-094-24 on 24th July, 2024.

RESULTS

The study sample consisted of 120 students from the IX and X nursing cycles, of which 110 participated, while 10 students chose not to be part of the study.

Of the total sample, 30.0% of students were between 18 and 23 years old, 30.9% were between 24 and 29 years old, 19.1% of students were between 30 and 35 years old, 15.5% were between 36 and 41 years old, 4.5% of the participants were between 42 and 27 years old, and only 0.9% were between 54 and 59 years old. Regarding sex, 83.6% were female and 16.4% were male. Related to the cycle, 56.3% were in the IX cycle and 53.7% were in the X cycle Table 1.

Table 1: Sociodemographic Data of IX and X Cycle Nursing Students (N=110)

	Total	
Participant Information	*n*	%
Age Range		
18-23	33	30.0
24-29	34	30.9
30-35	21	19.1
36-41	16	14.5
42-47	5	4.5
54-59	1	0.9
Total	**110**	**99.9**
Sex		
Female	86	86.4
Male	14	13.6
Total	**100**	**100**
Cycle		
IX	48	48.2
X	52	51.8
Total	**100**	**100.0**

Source: Instrument Application

Among the total student population (N=110), 31.8% (N=35) of nursing students had a low level of knowledge about breast cancer, 39.1% (N=43) had a regular level, and 29.1% (N=32) had a high level of knowledge about breast cancer.

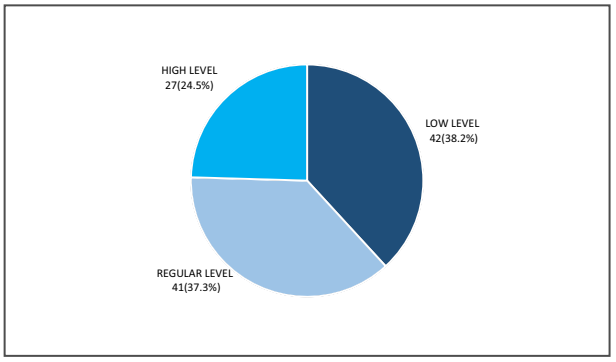

Figure 1: Level of Knowledge of the Dimension of General Aspects of Breast Cancer of IX and X Cycle Nursing Students (N=110)

Among the 100% of nursing students, 38.2% had a low level of knowledge of the general aspects of breast cancer, 37.3% had a regular level and 27.5% had a high level in this dimension Figure 1.

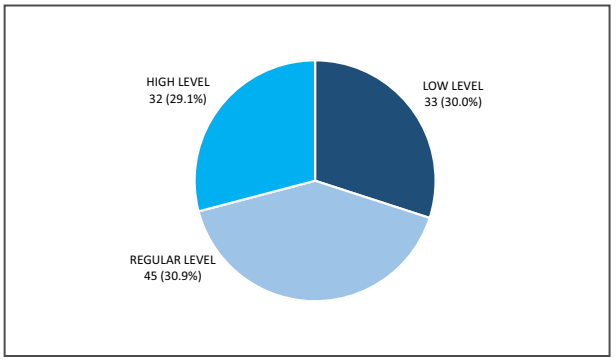

Figure 2: Level of Knowledge of the Breast Cancer Risk Factor Dimension of IX and X Cycle Nursing Students (N=110)

Among the 100% of nursing students, 30.0% had a low level of knowledge about breast cancer risk factors, 30.9% had a regular level and 29.1% had a high level in this dimension Figure 2.

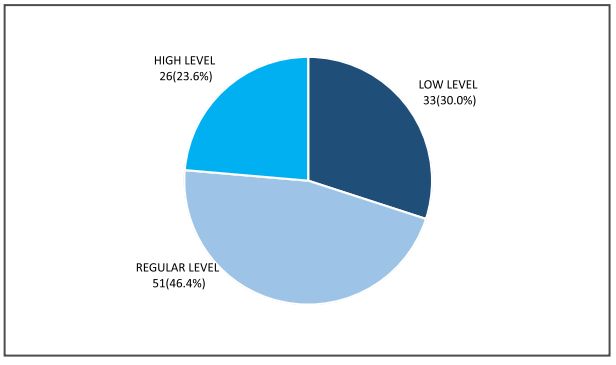

Figure 3: Level of Knowledge of the Dimension of Breast Cancer Preventive Measures of IX and X Cycle Nursing Students (N=110)

Among the 100% of nursing students, 30.0% had a low level of knowledge about breast cancer preventive measures, 46.4% had a regular level and 23.6% had a high level of knowledge in this dimension. Figure 3.

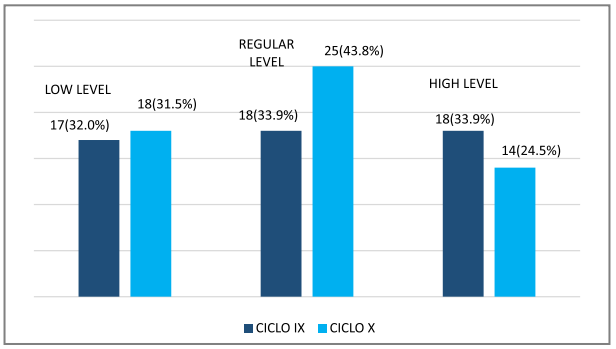

Figure 4: Level of Knowledge about Breast Cancer in Nursing Students According to the Academic Semester

According to the level of knowledge of global breast cancer according to the academic semester, 32.0% of students in cycle IX and 31.5% of students in cycle X had a low level, 43.8% of students in cycle IX and 33.9% of students in cycle X had a regular level, 33.9% of students in cycle IX and 24.5% of students in cycle X had a high level of knowledge about breast cancer. breast cancer Figure 4.

From the table 2, it has seen that 2.7% of nursing students totally disagree that a woman over 35 should have a mammogram, 9.1% disagree, 5.5% neither agree nor disagree, 45.5% agree and 37.3% of nursing students totally agree Table 2.

Table 2: Responses about the Age to Undergo Mammography of IX and X Cycle Nursing Students (N=110)

Do you think that every woman over 35 years of age should have a mammogram?	***n***	**%**
Totally disagree	3	2.7
Disagree	10	9.1
Neither agree nor disagree	6	5.5
Agree	50	45.5
Totally agree	41	37.3
Total	110	100.0

Source: Instrument Application

DISCUSSION

In accordance with our main objective to determine the level of knowledge about breast cancer among nursing students, it was found that most students had a regular level of knowledge (39.1%). This result is consistent with a study by Radi (2013), which found that 37.8% of nursing students had a medium level of knowledge regarding breast cancer risk factors and prevention. In this study, 31.8% of students had a low level of knowledge, which contrasts with Cruz and Chipantiza (2023), who found that only 4.5% had a low level of general knowledge about breast cancer. This discrepancy may be attributed to the fact that their study excluded students who had not taken and passed the Women's Nursing course, which likely increased the percentages of medium and high knowledge compared to our participants, who were in their ninth and tenth semesters and had already completed the course.

Regarding the dimension of knowledge about breast cancer risk factors, it was found that 29.1% of students had a high level of knowledge, 40.9% had a regular level, and 30% had a low level. These results diverge from those in a study by Yeshitila *et al*. (2021), which found that 70% of students had a high level of knowledge about risk factors, 20% had a regular level, and only 10% had a poor level. The difference might be due the focus on senior students who had completed advanced coursework on breast cancer prevention,

providing them with a more comprehensive understanding. In contrast, participants in our study, being in their final semesters, may have had varied exposure to this content across different programs.

In the dimension of knowledge about breast cancer preventive measures, 30% of students had a low level of knowledge. This finding differs from a study by Yang *et al.* (2019), which reported that only 8% of undergraduate nursing students exhibited low knowledge levels in this area. The difference in results may stem from their sample composition, which included a range of students specializing in preventive health disciplines (N=200). Nursing students showed notably higher levels of general knowledge compared to students from other programs, which may have contributed to the overall lower percentage of students with inadequate knowledge levels.

Regarding the appropriate age to undergo mammography as a preventive measure for breast cancer, 45.5% of students agreed and 37.3% totally agreed that the recommended age is from 35 years old, indicating that 82.8% know the correct age. This result differs from that in a study by Iglesias *et al*. (2020), where only 23% of nursing students knew the correct age for a mammogram. The discrepancy may be attributed to the fact that Iglesias's study included students from various health careers and cycles, where first-year students might not yet have received comprehensive information about the disease. In comparison, the students in our research, who had access to community and hospital practices and had been exposed to preventive measures, demonstrated better knowledge.

Limitations

Data collection took longer than expected because the students attended classes only one day a week, and not all of them attended regularly. Additionally, the courses discussing breast cancer were conducted remotely during the COVID-19 pandemic, which may have limited the knowledge of some students.

CONCLUSION

Nursing students in the IX and X cycles generally have a regular level of knowledge about breast cancer. Less than a third of students have a high level of knowledge regarding breast cancer risk factors. Regarding preventive measures for breast cancer, just under a quarter of students have a low level of knowledge. However, the largest proportion of students correctly identified the appropriate age for a preventive mammogram.

The results of this research will provide valuable knowledge and methodology for future studies, not only descriptive but also those that relate variables or conduct experimental research. This will help contribute to public health regarding breast cancer, highlighting the important role that nursing students and professionals play.

Recommendation

Students of the Faculty of Health Sciences are encouraged to conduct research studies that enhance the cognitive and preventive understanding of breast cancer, aiming to mitigate the consequences of this disease that impacts public health. Nursing students are advised to develop educational sessions focused on health promotion, addressing the main risk factors for breast cancer. It is recommended that the Professional Academic School of Nursing implement preventive and promotional activities, especially on the commemorative date for the fight against breast cancer, to reinforce knowledge of preventive measures. Additionally, the Faculty of Health Sciences should establish agreements with specialized cancer care facilities to ensure that nursing students gain appropriate knowledge and practical experience by applying the Nursing Care Process with patients who have breast cancer.

Conflict of Interest

The authors declare that they have no competing interests.

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