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Sociodemographic and diagnostic characteristics of women with cancer in a hospital in Peru

Características sociodemográficas y diagnósticas de mujeres con cáncer en un hospital del Perú

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Abstract

The purpose of the study was to describe the sociodemographic and diagnostic characteristics of women with cancer treated at a hospital in Cajamarca. A descriptive, cross-sectional design was developed with 279 confirmed cases. Variables such as age, occupation, level of education, place of origin, and type of cancer were analysed. The results show that most women had a low level of education: 42.0% had primary education, 24.1% had no formal education, and only 23.0% had completed secondary education. In terms of occupation, the role of housewife predominated (86.4%). Regarding origin, half came from the province of Cajamarca (50.2%), while San Marcos, Hualgayoc, and Celendín accounted for between 7% and 10% of cases. Other provinces contributed minimal percentages. Cervical cancer was the most frequent diagnosis (33.7%), followed by gastrointestinal cancer (15.4%), skin cancer (12.8%) and breast cancer (6.6%). Lymphomas and respiratory cancer were recorded in smaller proportions. In conclusion, most patients had gynaecological cancer and belonged to groups with low educational levels who were homemakers. These findings highlight gaps in cancer prevention that require more equitable and culturally relevant public policies in Cajamarca.

Keywords: cancer, sociodemographic profile, public health

Resumen

El estudio tuvo como propósito describir las características sociodemográficas y diagnósticas de mujeres con cáncer atendidas en un hospital de Cajamarca. Se desarrolló un diseño descriptivo y transversal con 279 casos confirmados. Se analizaron variables como edad, ocupación, grado de instrucción, procedencia y tipo de cáncer. Los resultados muestran que la mayoría de las mujeres presentaba bajo nivel educativo: el 42,0% tenía educación primaria, el 24,1% no contaba con instrucción formal y solo el 23,0% había cursado estudios secundarios. En cuanto a la ocupación, predominó ampliamente el rol de ama de casa (86,4%). Respecto a la procedencia, la mitad provenía de la provincia de Cajamarca (50,2%), mientras que San Marcos, Hualgayoc y Celendín concentraron entre 7% y 10% de los casos. Otras provincias aportaron porcentajes mínimos. El cáncer de cuello uterino fue el diagnóstico más frecuente (33,7%), seguido por cáncer gastrointestinal (15,4%), de piel (12,8%) y de mama (6,6%). Linfomas y cáncer respiratorio se registraron en proporciones menores. En conclusión, la mayoría de las pacientes presentó cáncer ginecológico y pertenecía a grupos con bajo nivel educativo y dedicadas al hogar. Estos hallazgos evidencian brechas en la prevención oncológica que requieren políticas públicas más equitativas y culturalmente pertinentes en Cajamarca.

Palabras clave: cáncer, perfil sociodemográfico, salud pública

Introduction

Cancer represents a transformative experience in women's lives, not only due to the clinical implications of diagnosis but also because of the myriad challenges it introduces into their daily realities. Women facing cancer contend with a simultaneous burden that is physical, emotional, and social, which directly affects their well-being and quality of life. As noted by Ramírez Rojas and Meza García (2024), illness transcends life stages: it can emerge at any point in the life cycle, triggering complex processes that involve pain, uncertainty, fear, and profound alterations in family and social dynamics.

From this perspective, understanding the health status of these women, the structure of their family units, the availability of support networks, and variations according to age groups becomes crucial to assessing the magnitude of the disease's impact. The literature acknowledges that diagnosis and treatment are, in and of themselves, sources of illness and suffering. However, it also emphasizes that having a solid support network helps mitigate the emotional burden of the therapeutic process, with the quality of family relationships serving as a significant predictor of coping effectiveness. Nevertheless, as the authors caution, there is still no consensus on the sociodemographic and clinical profiles of women with cancer or on how these factors interact with quality of life and psychosocial impact.

In this context, there is an urgent need to deepen the understanding of the clinical and sociodemographic profiles of this population, particularly in Latin American contexts where evidence remains limited. Motivated by this need, Padilla et al. (2025) conducted a study aimed at characterizing such profiles in a province of Argentina. They identified differences in psychosocial impact and quality of life across age groups. The authors found that while the psychosocial impact is weak, it is persistent, and that quality of life is significantly deteriorated, positioning family relations as a notable protective factor.

This need for a nuanced approach has also been highlighted by Izaguirre et al. (2024), who stress the importance of systematically studying the sociodemographic and clinical characteristics of women with cancer to enhance the planning and management of healthcare services. These authors underscore that in Argentina, research with a sociological focus remains insufficient, complicating a deeper understanding of the real needs of this population.

In their study involving 122 women attending an oncohematology center in southern Santa Fe, they gathered valuable information about the women's overall situation, the treatments received, therapeutic adherence, and the conditions under which they navigate the illness. Such evidence illustrates not only the magnitude of the problem but also the gaps that exist between service availability and user needs. Furthermore, it enables the identification of variables influencing disease progression, treatment responses, and levels of quality of life, making this approach essential for health management.

Complementing these perspectives, Torres Aja and Puerto Lorenzo (2024) summarize in their review that the sociodemographic and clinical profile of women with cancer tends to exhibit relatively consistent patterns across different countries in the region. Among the most common attributes are the predominance of adult women, often of older age; low educational levels; limited employment opportunities; and a marked unfavorable socioeconomic stratification. Clinically, breast cancer is the most frequently diagnosed type, typically at stage I, although over 60% of cases develop metastasis.

Moreover, comorbidities, primarily hypertension and diabetes, are present in more than 40% of these women. Regarding therapeutic adherence, while over 80% report having received all prescribed treatments, a significant number have interrupted treatment due to financial difficulties, adverse effects, or various social and psychological factors. These elements reflect how structural inequalities can intertwine with illness, impacting treatment trajectories and recovery.

However, as Díaz-Santos et al. (2023) warn, not all subgroups of women exhibit the same patterns. In some cases, available data show contradictory or unclear outcomes, underscoring the necessity for continued research. These inconsistencies highlight the importance of developing more specific studies to better understand differences among various cancer types, territorial contexts, sociodemographic variables, and the particularities of each age group. Understanding these differences is relevant not only for scientific inquiry; it also has direct implications for public policy formulation, prevention strategy design, and the planning of therapeutic and community interventions.

In this same vein, Carrasco and Vázquez (2023) note that cancer globally affects millions of individuals, and the burden on women is particularly significant, whether due to higher prevalence or increased associated risks. Their analysis reveals a trend toward greater frequency of cases among women aged 55 and older, particularly those from low socioeconomic backgrounds, with low educational attainment, often unemployed or inactive, and frequently diagnosed at advanced stages.

Finally, existing literature indicates that analyzing the sociodemographic and clinical characteristics of women with cancer is essential for a comprehensive understanding of the disease's impact. Such studies not only recognize general patterns but also identify significant differences among subgroups, which is crucial for implementing more equitable health policies and practices.

In this context, the objective of the present study was to describe the sociodemographic and diagnostic characteristics of women with cancer treated at a hospital in Peru, aiming to provide contextualized evidence that contributes to more humane, informed, and holistic care.

Methodology

An observational, descriptive, cross-sectional study was conducted. This design was chosen as it best fulfilled the objective of outlining the sociodemographic and diagnostic characteristics of a specific population at a given time, thereby generating a profile of women with cancer treated at the hospital and laying the groundwork for future analytical investigations. The reporting of this study adheres to the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) guidelines for cross-sectional studies.

The study was carried out at the Regional Teaching Hospital of Cajamarca, a level II-2 referral center serving a population of approximately 1.4 million residents in the Cajamarca region of Peru. The hospital offers both clinical and surgical oncology services, making it the primary diagnostic and treatment center for cancer in the area. All cases of cancer in women diagnosed and recorded in the hospital system between January 1, 2023, and December 31, 2023, were included.

The study population consisted of all women with a confirmed cancer diagnosis treated at the hospital during the study period. A non-probabilistic census sampling method was applied, including all cases that met the selection criteria.

The initial population identified consisted of 297 records. Following the application of exclusion criteria, the final sample analyzed comprised 279 women. The reduction of 18 cases was due to the exclusion of duplicate records (n=5) and cases with diagnoses not confirmed by pathology (n=13).

This study included only records of female patients with a cancer diagnosis confirmed through histopathological examination. Additionally, only cases treated at the hospital within the designated research period were considered, ensuring that the data corresponded to the established temporal framework.

Duplicate records were removed from the database, as were cases where the cancer diagnosis was based solely on clinical suspicion or the presence of tumor markers without histopathological support. Records missing more than 50% of the pertinent information for the main sociodemographic variables—specifically age, place of origin, and education level—were also excluded, as their absence obstructed adequate analysis.

The variables were defined and categorized as follows:

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Table 1
Study variables

Variable	Operational Definition	Type of Variable	Measurement Scale
Age	Years completed at the time of diagnosis, grouped in decades.	Quantitative	Ratio
Education Level	Highest formal educational level achieved, categorized as: No education, Primary, Secondary, Technical Higher, University Higher.	Qualitative	Ordinal
Occupation	Main economic activity reported by the patient, categorized as: Homemaker, Student, Merchant, Teacher, Farmer, Other.	Qualitative	Nominal
Place of Origin	Province of habitual residence of the patient, according to the National Registry of Identification and Civil Status (RENIEC).	Qualitative	Nominal
Type of Cancer	Histopathological diagnosis classified according to the International Classification of Diseases for Oncology, 3rd edition (ICD-O-3).	Qualitative	Nominal

A standardized data collection form was developed to extract information from electronic medical records and pathology service records. This form underwent a pilot test with 20 records to ensure clarity and relevance. Data collection was conducted by two research team members who were trained in advance.

To ensure data quality, double data entry was performed in a database created using Microsoft Excel 2021. Discrepancies were resolved through consensus and, when necessary, by reviewing the original source again. Handling of missing data was conducted through complete case analysis for the main variables.

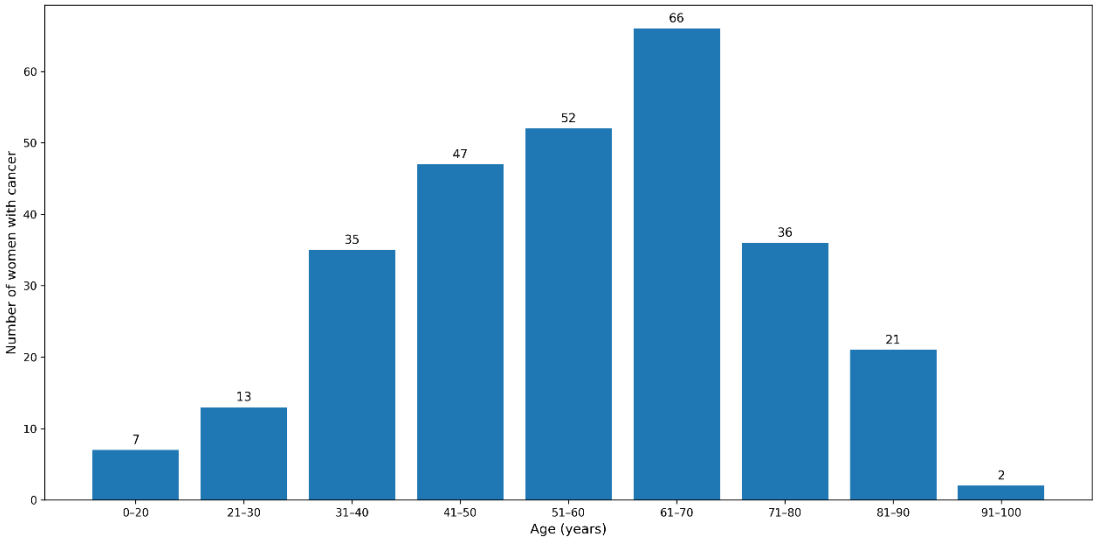
Data processing was carried out using SPSS statistical software, version 26. Descriptive statistics were used to summarize the characteristics of the sample. Qualitative variables were expressed in terms of absolute and relative frequencies (percentages). For quantitative variables such as age, measures of central tendency (mean) and dispersion (standard deviation) were computed, alongside an analysis of their distribution within the established age groups. Ultimately, the results were organized into tables and visually represented using bar and pie charts for ease of interpretation.

Results

The following presents the primary findings of the study, which provide insights into the sociodemographic and diagnostic profile of women with cancer treated at the Regional Teaching Hospital of Cajamarca during 2023. The information is organized according to the analyzed variables: age, education level, occupation, place of origin, and type of cancer, aiming to offer a comprehensive view of the most pertinent characteristics of the study population. These results serve as a foundation for interpreting observed trends and exploring the inequalities that shape the cancer experience in this region.

Figure 1

Age distribution of women diagnosed with cancer



In 2023, 279 cases of cancer in women were recorded at the Regional Teaching Hospital of Cajamarca. The age distribution indicates that diagnoses are primarily concentrated among women aged 61 to 70 years, with 66 cases (23.7%). This is followed by women aged 51 to 60 years with 52 cases (18.6%), and those aged 41 to 50 years, totaling 47 cases (16.8%). This pattern confirms that the highest burden of the disease occurs in middle-aged and older women.

In older age ranges, there were 36 cases in women aged 71 to 80 years (12.9%). Among younger patients, 35 cases were identified in the 31 to 40 years group (12.5%) and 13 cases among those aged 21 to 30 years (4.7%). Additionally, 7 cases were reported in women aged 0 to 20 years (2.5%). Finally, only 2 women aged 91 to 100 years (0.7%) were diagnosed with cancer during the study period.

Figure 2

Education level of women with cancer

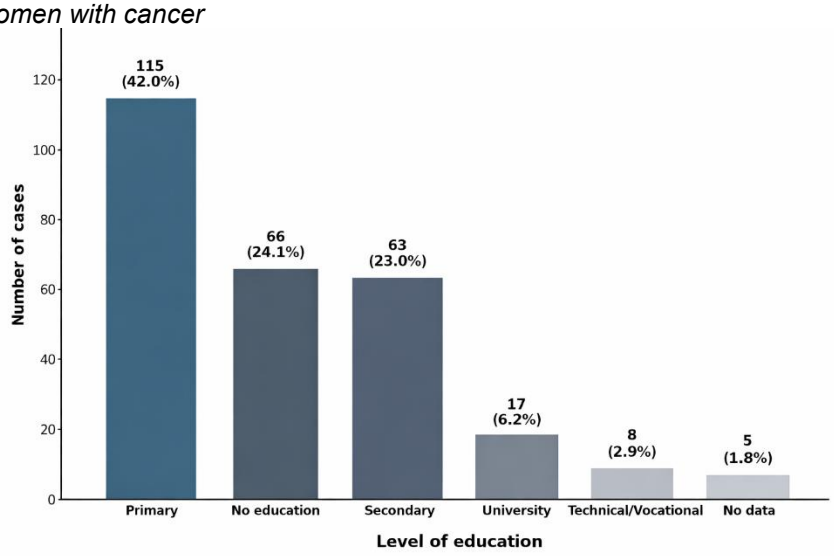
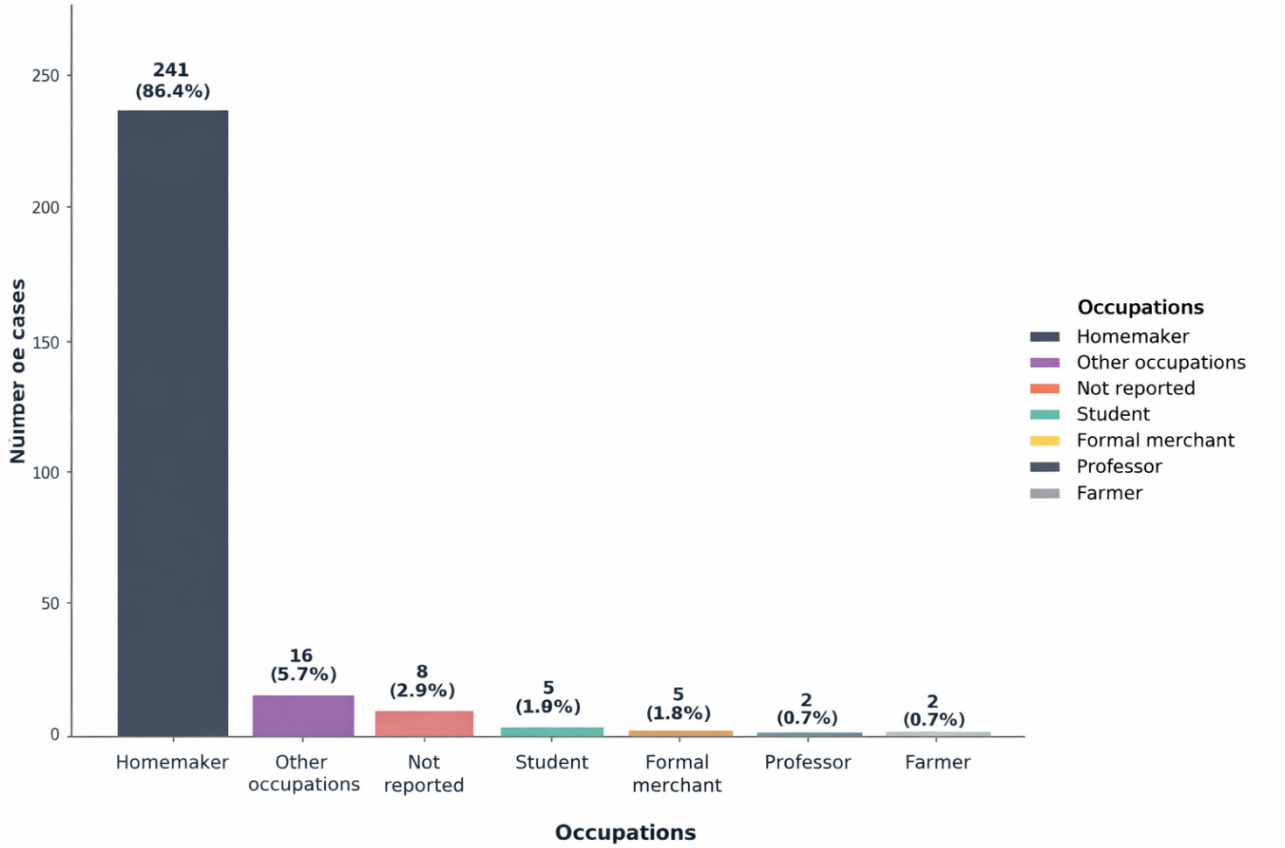


Figure 2 shows that 115 women (42.0%) had completed primary education at the time of diagnosis. This was followed by 66 women (24.1%) with no formal education and 63 women (23.0%) with secondary education. In smaller proportions, 17 cases (6.2%) had completed university education and 8 cases (2.9%) had obtained technical training. Additionally, a small group of 5 women (1.8%) had no recorded information regarding their educational level.

Figure 3

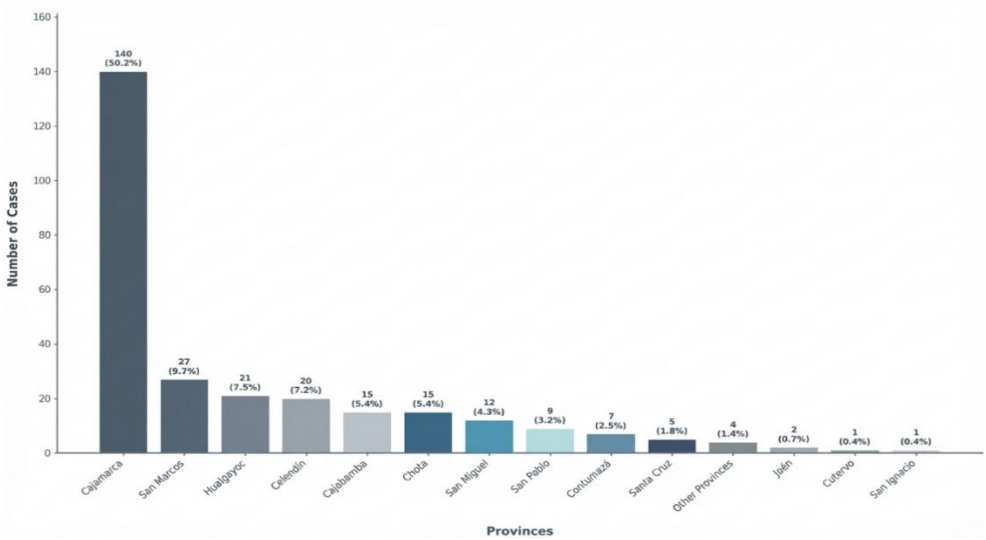
Occupation of women diagnosed with cancer



The bar chart illustrates the distribution of cases by occupation, revealing that the "Homemaker" category overwhelmingly dominates the data with 241 cases, accounting for 86.4% of the total. Other occupations show considerably lower frequencies, with "Other Occupations" representing 5.7%, followed by "Not Informed" at 2.9%. The "Student" and "Formal Merchant" categories each account for 1.8%, while "Teacher" and "Farmer" are the least common, each comprising just 0.7%. This marked disproportion underscores that the phenomenon studied predominantly affects homemakers compared to any other occupational group.

Figure 4

Geographical distribution of cancer cases in women by province of origin



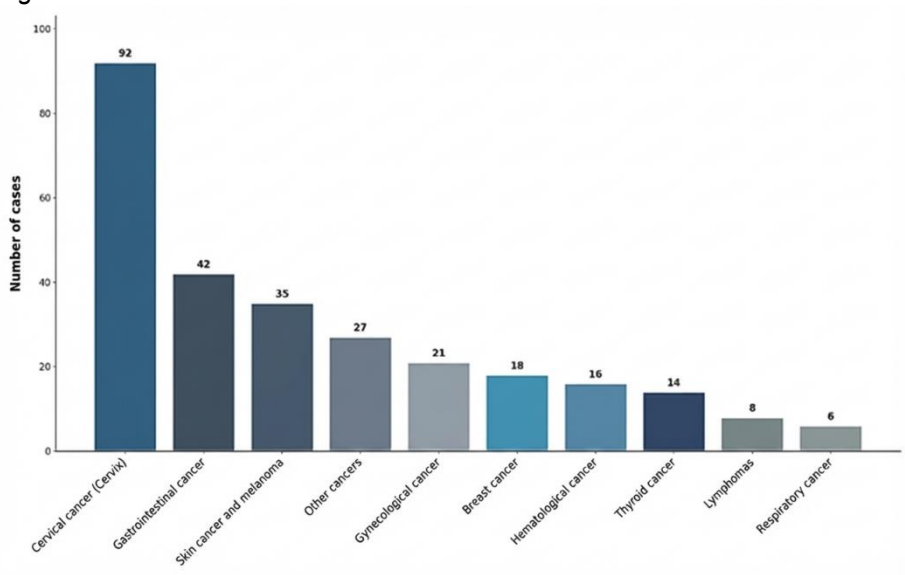
The distribution of cases among women diagnosed with cancer in the Cajamarca region shows a pronounced geographical concentration. The province of Cajamarca accounts for more than half of the recorded cases (140; 50.2%), indicating a significant predominance in this area. This is followed by San Marcos (27; 9.7%), Hualgayoc (21; 7.5%), and Celendín (20; 7.2%), which represent provinces with moderate frequencies.

The remaining provinces show notably fewer cases, with Cajabamba and Chota each reporting 15 cases (5.4%), San Miguel with 12 cases (4.3%), San Pablo with 9 cases (3.2%), and Contumazá with 7 cases (2.5%). Finally, Santa Cruz (5; 1.8%), Jaén (2; 0.7%), Cutervo (1; 0.4%), and San Ignacio (1; 0.4%) show the least representation, while unspecified locales account for 4 cases (1.4%).

Overall, these data reflect a significant concentration of the disease in the regional capital and some nearby provinces, while the rest of the territory reports much lower incidence rates. This may relate to factors such as population density, access to healthcare services, hospital infrastructure, or differences in early cancer detection among the provinces.

Figure 5

Types of cancer diagnosed in women treated



The analysis of the bar chart reveals a notable predominance of cervical cancer, identified as the most frequently occurring oncological condition with a total of 92 cases. This figure not only tops the list but represents more than double the cases of the next most common type of cancer, highlighting its high incidence within the studied population.

Subsequently, a cluster of cancers with intermediate frequency is observed. Gastrointestinal cancer ranks second with 42 cases, closely followed by skin cancer and melanoma with 35 cases. Other relevant categories include "Other Cancers" with 27 cases, gynecological cancer with 21, breast cancer with 18, hematological cancer with 16, and thyroid cancer with 14. This dataset illustrates a decreasing but significant frequency in comparison to less common cancer types.

At the lower end of the distribution are the cancer types with the fewest recorded cases. Lymphomas, with 8 cases, and respiratory cancer, with 6 cases, are the least prevalent in this sample. Overall, the chart highlights a clear hierarchy in the frequency of different cancer types, with cervical cancer emerging as the principal oncological health issue within this context.

Discussion

The study results identified that the highest proportion of cases occurred in women aged 61 to 70 years (23.7%), a trend consistent with epidemiological patterns described for Peru and Latin America. Zavala et al. (2023), through the PEGEN BC study, analyzed this phenomenon and noted a significant increase in cancer frequency among older women, particularly those aged 50 and above. This observation is reinforced by Torres-Roman et al. (2020), who warned of a sustained increase in cancer mortality among Peruvian women. Similarly, Piñeros et al. (2022), based on GLOBOCAN reports, indicated that 2020 saw a notable rise in cancer-related deaths among those over 50. Zafra-Tanaka (2020) also reported a rise in cancer incidence from 15.4% to 18.1%

based on national data from 2003 to 2016, reaffirming that the impact of cancer is concentrated among adults and the elderly.

The investigation also revealed a higher incidence of cancer among women with low educational attainment, as patients with primary education accounted for 42.0% of cases, while 24.1% had no formal education. In contrast, only 6.2% held university degrees and 2.9% had technical training. This distribution aligns with findings by López (2025), who described how limited access to education is associated with a higher frequency of cancer and an increased mortality burden. According to Zagkos et al. (2024), education acts as a protective factor against cancer by promoting healthier lifestyles: lower alcohol and tobacco consumption, increased physical activity, and better dietary habits. Indeed, Intimayta Escalante et al. (2024) highlighted that education opens pathways to preventive programs, resulting in higher participation rates among women with secondary or higher education in screenings like Pap smears and mammograms. This evidence indicates that women with lower academic qualifications are more exposed to late diagnoses, reinforcing the need to strengthen health education and simultaneously expand and localize cancer screening programs targeting vulnerable women.

Another important finding is that the majority of cases were among homemakers (86.4%), aligning with Latin American studies reporting a high proportion of cancer in this demographic. According to Cazap (2018) and Donzo et al. (2024), this association may be linked to difficulties accessing preventive programs, the influence of social determinants of health, and persistent cultural barriers that limit timely healthcare seeking. In rural areas or low-income populations in Peru, both prevention and early diagnosis tend to be inadequate, as recognized by the Peruvian Ministry of Health (2020). Collectively, these results underscore that limited access to sanitation, electricity, and potable water serves as a social determinant increasing vulnerability to cancer.

Regarding place of origin, 50.2% of the cases came from the province of Cajamarca, which may be attributed to the concentration of available specialized services and higher population density in this area. Yu et al. (2024) argue that urban centers have a greater likelihood of timely diagnoses due to the availability of medical specialties lacking in primary healthcare facilities. A significant burden of cases was also noted in provinces like San Marcos, Hualgayoc, and Celendín (ranging from 7% to 10%), which may be attributed to limited access to essential and specialized health services. These areas also feature labor activities linked to mining, where the interaction between rural communities and extractive projects could have an influence, as discussed by Loayza Vera (2024) in his study on cancer and environmental exposure in Andean regions. In contrast, provinces like Cutervo, San Ignacio, and Jaén exhibited a lower proportion of cases, reflecting geographical, economic, and cultural barriers to accessing specialized services, as mentioned by Alcalde (2025).

Concerning the types of neoplasms observed, cervical cancer was reported as the primary pathology at the Regional Teaching Hospital of Cajamarca in 2023, accounting for 33.7% of cases. Bray et al. (2021) and Arbyn et al. (2020) note that this aligns with national patterns, where low screening coverage and vaccinations against the human papillomavirus remain significant challenges. Gastrointestinal cancers ranked second (15.4%), followed by skin cancer and melanoma (12.8%).

Less frequently observed were breast cancers (6.6%), hematological cancers (5.9%), and thyroid cancers (5.1%), followed by lymphomas (2.9%) and respiratory cancers (2.2%). Although their prevalence is lower, Pulte et al. (2017) and Lim et al. (2017) emphasize that these neoplasms require specialized studies and, hence, necessitate timely access to both preventive programs and advanced diagnostic services. This reinforces the importance of closing gaps in access to oncological care and strengthening preventive strategies from a territorially and socially contextualized perspective.

Conclusions

The findings of this study affirm that the women treated at the Regional Teaching Hospital of Cajamarca in 2023 are predominantly adults and older adults, primarily homemakers with low educational attainment, thereby constituting a profile of high social and health vulnerability. The predominance of gynecological neoplasms, particularly cervical cancer, confirms the disproportionate burden of this disease in contexts with limited prevention and timely diagnosis.

Additionally, the concentration of cases in the province of Cajamarca and in other regions lacking basic services suggests that social, geographical, and environmental determinants significantly influence the distribution of cancer in the region. These conditions manifest as inequalities in access to specialized services, screening programs, and vaccination strategies, deepening the disparities among groups of women with differing levels of education, occupation, and origin.

In light of this scenario, it is imperative to strengthen public policies that prioritize cancer prevention among women, with an emphasis on intercultural interventions, health education, and the expansion of screening programs within primary healthcare. Furthermore, future studies should integrate environmental, social, and

cultural variables to better understand the risk factors associated with delayed detection, fostering more equitable, timely, and needs-centered oncological care for women in the Cajamarca region.

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