ORIGINAL ARTICLE

Risk factors and level of knowledge about cervical cancer in adolescents

Factores de riesgo y nivel de conocimientos sobre cáncer cervicouterino en adolescentes

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ABSTRACT

Background: cancer represents a global health problem. In recent years, the incidence of morbidity from this disease has increased among adolescents.

Objective: to identify the risk factors and the level of knowledge about cervical cancer in adolescents from the Julio Pino Machado basic secondary school, belonging to the area of the Marta Abreu University Polyclinic in the municipality of Santa Clara.

Methods: an intervention, pre-experimental study was conducted at the Julio Pino Machado basic secondary school, belonging to the area of the Marta Abreu University Polyclinic, in the municipality of Santa Clara, during the period October 2023-October 2024. Theoretical methods were used for the foundation of the research; and empirical: documentary analysis, questionnaire addressed to female adolescents about risk factors and the level of knowledge about cervical cancer.

Results: it was found that the predominant risk factors were early onset of sexual relations, unprotected sexual practice, and the presence of vaginal infections, despite the existence of clear guidelines in the family doctor and nurse programs and the early cancer detection program. 76.67% showed a Poor level of knowledge, according to the scale established by the researchers.

Conclusions: risk factors for contracting cervical cancer and deficiencies in the level of knowledge to avoid it were identified in the adolescents of the sample, which demands the intervention of coping strategies from primary health care.

MeSH: early detection of cancer; adolescent; risk factors; health status indicators; health promotion; education, medical.

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RESUMEN

Fundamento: el cáncer representa un problema de salud mundial. En los últimos años se ha elevado la incidencia en la morbilidad de esta enfermedad en adolescentes.

Objetivo: identificar los factores de riesgo y el nivel de conocimientos sobre el cáncer cervicouterino en adolescentes de la secundaría básica Julio Pino Machado, perteneciente al área del Policlínico Universitario Marta Abreu del municipio de Santa Clara.

Métodos: se realizó un estudio de intervención, prexperimental, en la secundaría básica Julio Pino Machado, perteneciente al área del Policlínico Universitario Marta Abreu, del municipio de Santa Clara, en el período octubre 2023-octubre 2024. Se emplearon métodos

teóricos para la fundamentación de la investigación; y empíricos: análisis documental, cuestionario dirigido a adolescentes féminas sobre los factores de riesgo y el nivel de conocimientos sobre cáncer cervicouterino.

Resultados: se constató que los factores de riesgo predominantes fueron el inicio de relaciones sexuales en edades tempranas, su práctica en forma desprotegida y la presencia de infecciones vaginales, a pesar de que existen directrices claras en los programas del médico y la enfermera de familia y el de diagnóstico precoz contra el cáncer. El 76,67 % mostró un nivel de conocimientos Malo, según la escala establecida por las investigadoras.

Conclusiones: se identificaron los factores de riesgo para contraer el cáncer cervicouterino e insuficiencias en su nivel de conocimientos para evitarlo, en adolescentes de la muestra, lo cual demanda la intervención de estrategias de afrontamiento desde la atención primaria de la salud.

DeSC: detección precoz del cáncer; adolescentes; factores de riesgo; indicadores de salud; promoción de la salud; educación médica.

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INTRODUCTION

Currently, cancer constitutes a serious health problem for humanity; its incidence and mortality rates are high worldwide, as are the psychological, family, work, and economic disruptions it causes.

The fight against cancer concerns not only doctors, researchers, and health professionals, but also the general population. It is reasonable to undertake with interest any project that

represents aid in the fight against malignant tumors. Cancer is one of the most complicated processes faced by medicine, due to its complex, diverse, and multicausal nature.[1]

The World Health Organization (WHO) estimates that 500,000 new cases of uterine cancer are diagnosed each year and more than 550,000 women die, of which 80% come from developing countries.[2]

Cervical cancer is a type of malignant neoplasm, preventable and eradicable; however, it is one of the most frequent causes of death in women worldwide, including the Americas region. Low-income countries have more than double the incidence of high-income countries, and a mortality rate seven times higher.[2]

According to the Pan American Health Organization (PAHO), cervical cancer is the second most frequent among women in Latin America and the Caribbean, although it ranks fourth in the Americas region, 35,000 women die each year and an estimated 83,000 are diagnosed.[3] In Cuba, despite the existence of an early detection program, cervical cancer persists as a health problem; this disease ranks fourth in incidence and fifth in mortality.

In 1968, the first strategy for cervical cancer control was implemented through a program for its early detection. Although millions of women have benefited, the desired objective of reducing incidence and mortality from this cause has not been achieved. The introduction of early detection programs and the improvement of existing ones, coupled with preventive measures that the population can adopt, positively impact the reduction of incidence and mortality from this disease.

For decades, organic cytology (Pap test) has been the most widely used screening test in the world.[4] In the municipality of Santa Clara, Villa Clara, in 2020 (the last year that screening was performed on all women who were due, as supply difficulties have made it impossible to comply with the program since that year) out of a total of 12,484 patients examined, 4,948 (39.6 %) had altered cytologies. In the Marta Abreu University Polyclinic, the area where this study is conducted, out of a total of 3,121 patients examined, 78 (25 %) had altered

cytologies and 75.4% of the examined females under 25 years of age were affected and had risk factors.[5]

Cervical cancer today represents in Santa Clara a problem impacting women's health, evidenced by statistics that rise each year and demonstrate an increase in the appearance of this type of lesion in age groups of females that precede the groups established and controlled by the Program for Early Diagnosis of Cervical Cancer (ages 25 to 64). The program considers that before these ages, signs of this pathology should not appear due to epithelial characteristics. However; in the area of the aforementioned polyclinic, it is evident that a considerable number of young women come to the clinic with a clinical picture ranging from low-grade lesions to severe lesions, that is, already sick.

In recent years, despite the implementation of the aforementioned program, there has been a rise in incidence regarding morbidity from this type of lesion in young people under 25 years of age. This indicates an early appearance of these lesions, causing both economic and psychosocial impacts.

The transmission of knowledge for prevention and health promotion is largely in the hands of the family doctor and nurse.[1] The knowledge of adolescents about the prevention of cervical cancer is important for controlling risk factors and for encouraging their participation in early detection programs; hence, the objective of this research is: to identify the risk factors and the level of knowledge about cervical cancer in adolescents from the Julio Pino Machado basic secondary school, belonging to the area of the Marta Abreu University Polyclinic in the municipality of Santa Clara.

METHODS

A pre-experimental intervention study was conducted at the Julio Pino Machado basic secondary school, belonging to the area of the Marta Abreu University Polyclinic in the municipality of Santa Clara, Villa Clara province. From a population of 93 female adolescents, a sample of 30 adolescents was selected by convenience sampling for field

access, corresponding to the total number of females in groups 9th grade 1 and 9th grade 2 during the period from October 2023 to October 2024. The studied adolescents were between 14 and 15 years old.

Inclusion criteria:

- Female population, belonging to groups 9th grade 1 and 9th grade 2 of the Julio Pino Machado basic secondary school, with or without the presence of risk factors, groups taught by the Mathematics teacher.
- Willingness to participate, through the signing of the informed consent form as a bioethical principle of the research.
- Parental authorization to participate in the research, through informed consent.

Exclusion criterion: adolescents who refused to give their own informed consent or whose parents did not authorize their daughters' participation.

To fulfill the research objective, the following theoretical methods were used:

- Analytical-synthetic: analysis was used in the assessment of the problem situation and, in turn, synthesis was used when relating these elements to each other and linking them to the problem as a whole. Hence its use throughout the process of reviewing and studying documents and bibliographies related to the object of study, as well as in the processing of the resulting knowledge from the research.
- Inductive-deductive: considering that induction refers to the movement of thought from particular instances to statements of a general character, it was used during the processing of the obtained data. As important theoretical methods for this research, induction and deduction complement each other mutually in the process of knowledge development.
- Abstraction: this method expresses the transformation of scientific knowledge in its development process, which goes through different levels from the sensory-concrete -the starting point of the research-, to abstraction -as a reflection, a schematized image of the phenomenon, but one that expresses an essential relationship of it-,

until reaching the thought-concrete, a level that reflects the connection and multiple dependencies between processes and phenomena. It was used throughout the research process.

- Historical-logical: to understand the logical history of the study topic, its background, and current trends. It was used to refer to the background of the research and in the development of the theoretical framework.

Empirical methods:

Document analysis: a review was conducted of documents established by the Cuban Ministry of Public Health (Minsap); the Early Diagnosis Program for Cervical Cancer[1] and the Family Doctor and Nurse Program,[6] which formed the basis for the diagnostic information collection instruments.

Adolescent questionnaires: to identify risk factors related to cervical cancer in the study sample.

Cervical Cancer Knowledge questionnaire: Used to explore the knowledge that the investigated adolescents have at this initial diagnostic stage in relation to the topic of cervical cancer.

Statistical methods:

For the statistical processing of the collected information, a database was created in Excel and an SPSS version 11.0 for Windows file; this statistical package was used for processing, and the results were presented in tables and graphs. The mathematical percentage, contingency tables of absolute and relative frequencies, and proportions were used for qualitative variables.

Knowledge level categories:

- Good: scores 18 points or more on the aspects evaluated in the questionnaire.

- Fair: scores between 14 and 17 points on the aspects evaluated.
- Poor: scores 13 points or less.

Ethical considerations: informed consent was requested from the adolescents in the study sample and their parents; anonymity and confidentiality of the data were guaranteed.

RESULTS AND DISCUSSION

In the Family Doctor and Nurse Program[6] the functions of the basic health team (EBS) related to health promotion and disease prevention are defined. The first step is to register all patients at risk of developing cancer due to age and/or their personal and family history. It is directed to conduct an active screening that includes a gynecological examination once a year for every patient who is sexually active, even if they are registered as healthy. Despite these guidelines, there is insufficient monitoring of adolescents; they do not attend the established appointments, lack knowledge about risk factors related to cervical cancer, and it is observed that when they do seek consultation, it is because they are experiencing symptoms. It is evident that there are deficiencies in health promotion regarding the pathology in question.
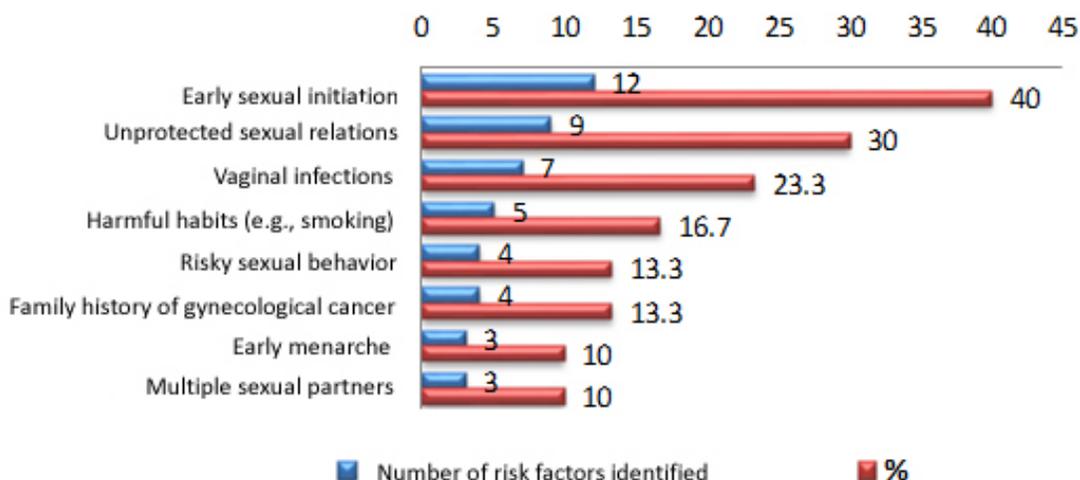
The Early Diagnosis Program for Cervical Cancer[6] refers to the increased morbidity and mortality from this cause and includes among its objectives the reduction of these rates; to this end, among other actions, it proposes prioritizing screening. Its purpose is to achieve 80 % coverage for women aged 25 to 60 (prioritizing women aged 35 and over) in cytological testing, to screen high-risk populations not included within the proposed age limits, to perform cytological tests as medically indicated when necessary, and to reduce the number of non-useful cytological tests. The program prioritizes health promotion and prevention actions that are not always fulfilled.

The following was obtained as a regularity from the document analysis:

- Despite the existence of guidelines and actions aimed at control for the prevention of this cancer, the monitoring performed and the identification of risk factors by the EBS for adolescents are still insufficient. Consequently, necessary actions in this regard are not prioritized, despite the increase in mortality from this cause.

Leguizamón[7] states in his educational program that health actions aimed at promoting and preventing cervical cancer are the fundamental tool for the female population to achieve early diagnosis and thus reduce the incidence of this type of cancer. The author also refers to the need to plan educational interventions from an early age; both criteria are shared by the authors of the present research.

Figure 1 shows the distribution of adolescents according cervical cancer risk factors.

Fig. 1 Distribution of Adolescents According to Cervical Cancer Risk Factors. Julio Pino Machado Basic Secondary School. October 2023-October 2024
Source: adolescent questionnaires

Adolescents with early sexual intercourse (40 %) predominated. In 30 % of them, unprotected sexual relations were present, and in 23.3 %, the presence of vaginal infections was confirmed. In 16.6 %, toxic habits were identified; in 13.3 % risky sexual behavior and family history of gynecological cancer. 10 % corresponded to adolescents with multiple sexual partners and early menarche.

The analysis of the potential impact of each risk factor on the genesis of cervical cancer reaffirms the authors' consideration regarding the importance of the early detection of these factors; acting upon them contributes to the quality of life of the female population.

The research is based on the identification of cervical cancer risk factors in adolescent female students, given the relationship perceived by the authors between knowledge of risk factors and their control for the prevention of cervical cancer, derived from accumulated experience in clinical practice in primary healthcare. They consider that the presence of some modifiable risk factors may be associated with the adolescents' lack of knowledge on the subject.

Early menarche is a non-modifiable factor; although there is not yet a definitive, consensus statement on this topic, some authors have confirmed a certain correlation between this factor and cervical cancer.[8]

The onset of cervical cancer is closely related to the early initiation of sexual intercourse.[8] This constitutes a very important factor to be considered by the BHT for carrying out promotion and prevention actions with adolescents, in order to increase educational work for their current and future sexual behavior. The presence of this risk factor is related to lack of knowledge and difficulties in sex education.

The authors of the present study consider it imperative to educate the most vulnerable population regarding the presence of the human papillomavirus (HPV). The prospects and realities of a vaccine suggest that infection with this virus could be controlled in the present century. Data show a high association between HPV and cervical cancer, so it is considered that the timely diagnosis of its lesions in adolescents is a worldwide challenge. In the absence of concrete factors that facilitate the detection of at-risk patients to provide an early diagnosis and a treatment with positive results, greater effort from healthcare professionals and institutions is required.

Women carrying HPV DNA, with seven or more full-term pregnancies, have a risk of developing the disease four times higher than nulliparous women or those with fewer children. However, only women under 16 years old, in whom the epithelium is in a transition phase, are more susceptible to lesions. In full-term pregnancies and natural deliveries, the possibility of trauma in the cervical transformation zone is not frequent, so its influence is questionable.[9]

HPV infection is more common in young women under 25, coinciding with the onset of their sexual life. This is the most important risk factor in the genesis of cervical cancer. It is a necessary but not sufficient cause. It requires cofactors such as: early age at first sexual intercourse, high number of sexual partners, other sexually transmitted diseases, smoking, consumption of oral contraceptives for more than five years, and immunological alterations like HIV1. HPV infection is considered the most frequent sexually transmitted infection.[10]

The authors consider the educational work of the BHT members important, especially with the youngest women in the community, even if they are not included in the Early Detection Program for Cervical Cancer. At the same time, it is prudent to ensure compliance with the guidelines regarding the performance of the cytological test or Pap smear with the established frequency.

The smoking habit, present in 16.7 % of the adolescents in the study, also increases the risk of developing cervical cancer. Nicotine, once in the bloodstream, upon reaching the cervix, is transformed into an oncogen capable of inducing mitogenic changes in cervical cells. Some national and international studies suggest that women who smoke have twice the risk compared to non-smokers due to the action of the carcinogenic elements in tobacco smoke.[11,12]

Díaz Alarcón *et al.*[13] in a study related to knowledge, attitudes, and practices about the Pap test, address smoking as a risk factor associated with the presence of squamous cell carcinoma.

Another study on the behavior of cervical cancer risk factors[11] reports the presence of cervical lesions with significant percentages in women with toxic habits, including the smoking habit, which is why it is agreed that toxic habits constitute predisposing risk factors for cervical cancer.

Díaz Romero,[14] in Ciego de Ávila, finds that risk factors highly identified in the literature, such as first coitus before age 15 and the smoking habit, are present in a clear minority in his study. Adolescent pregnancy and oral contraceptive ingestion are the most reported; while a family history of gynecological cancer is present in 13.3 % of his sample.

In the present study, it was identified that the adolescents in the sample had unprotected sexual relations (30 %). Thus, they are exposed to sexually transmitted diseases, including HPV, the precursor of cervical cancer. Many adolescents do not practice this protection. According to the reviewed literature, unprotected sexual activity does not generally cause morbidity and mortality during adolescence, but rather it is in the course of life when sexually transmitted diseases begin to appear; these become morbidities and compromise the sexual and reproductive health of females with changes in epithelial cells and the appearance of the first intracervical lesions.[10]

Table 1 contains the distribution of adolescents according to their level of knowledge about cervical cancer. 76.67 % are in the Poor level and 16.67 % in the Fair level. Only in 6.67 % of the investigated subjects did the level of knowledge classify as Good.

Table 1. Distribution of the adolescent sample according to level of knowledge about cervical cancer. Julio Pino Machado Basic Secondary School. October 2023-2024

Level of Knowledge	Number	Percentage (%)
Poor	23	76,67
Fair	5	16,67
Good	2	6,67

Total	30	100.00

Source: adolescent questionnaires

Despite the dissemination of the topic through mass media, schools, workplaces, and primary and secondary healthcare services, the authors of this paper believe it is necessary to implement more educational programs to increase knowledge about cervical cancer prevention. These programs should be specific and based on prior studies of the characteristics and needs of the target population. Family doctors and nurses should enhance their preventive efforts by working more with adolescents, explaining the risk factors associated with this type of cancer to promote prevention from an early age.

A study conducted in Ecuador at the Guano-Penipe Health Center[15] identified as a deficiency that adolescents have a very low level of risk perception regarding cervical cancer. Their knowledge is limited, interest in learning about this disease is low, and there are indications of negative attitudes toward the possibility of preventing it.

Scientific contribution

The research provides a diagnosis of the presence of cervical cancer risk factors in adolescent female students and their level of knowledge on the topic. This underscores the need to design and implement educational interventions from these early ages for prevention purposes.

CONCLUSIONS

Risk factors and the level of knowledge about cervical cancer were identified among adolescents at the Julio Pino Machado Basic Secondary School, located in the area of the Marta Abreu University Polyclinic in the municipality of Santa Clara. A high percentage of adolescents present risk factors associated with the development of this disease, and the level of knowledge on the topic is insufficient among most of them. This calls for the implementation of coping strategies through primary healthcare services.

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Interest statement

The authors declare no conflicts of interest.

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