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DETERMINANTS AND BARRIERS TO THE UPTAKE OF CERVICAL CANCER TESTING AND COUNSELLING SERVICES AMONG SECONDARY SCHOOL STUDENTS IN ENUGU STATE

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Abstract

Cervical cancer remains a significant public health concern in Nigeria despite being one of the most preventable cancer through early detection and appropriate counselling. The study investigated the determinants and barriers of cervical cancer testing counselling services among secondary school students in Enugu State. Three research questions and hypotheses were formulated to guide the study. The hypotheses were tested at p>0.05 level of significant. Descriptive survey research design was adopted for the study. The study focused on 3 female secondary schools in Enugu State with a total student population of 6100. Sample of 375 participants were selected using multi-stage sampling approach.12 item questionnaire were used for data collection. The instrument underwent validation by three experts. The reliability index of 0.82 was obtained for the instrument using cronbach Alpha statistics. Frequency counts, percentages, mean and standard deviation were used to answer the research questions while the hypotheses were tested using chi square and t-test statistics. The results of the findings revealed among others that awareness of cervical cancer among students were generally low, with42.7% aware of the disease and 32.0% aware of testing and counselling services. Parental education 37.3%, exposure to school health education 29.3% and peer influence 20.0% were identified as determinants influencing uptake. Major barriers included lack of awareness 66.7%, non availability of adolescent friendly services 61.3%, fear of pain or diagnosis 58.7%, cultural misconception 53.3%, and parental disapproval 50.7%. Hypothesis testing indicated significant relationship between awareness, parental education, and class level with uptake of services (p<0.05), while age and social economic status were not significant. The study concludes that uptake of cervical cancer testing and counselling among secondary school students are unacceptably low. It recommends that he ministries of heath should intensify awareness campaigns on cervical cancer screening among secondary school students through school health programs and community outreach.

Keywords: Barriers, Cervical Cancer, Determinants, Enugu State, Screening Uptake, Secondary School Students.

Introduction

Cervical cancer is a major global health burden and a leading cause of cancer-related deaths among women, despite being one of the most preventable forms of cancer. According to 2023 World Health Organization (WHO) general report, an estimated 604,000 new cervical cancer cases and 342,000cervical cancer related deaths were

reported in 2020. This ranks cervical cancer as the fourth most common cancer among women worldwide. Cervical cancer is the uncontrolled growth of cells in the cervix; the lower part of the uterus that opens into the vagina. It's a slow-developing disease often preceded by precancerous cell changes that can be detected through screening. The primary cause of cervical cancer is persistent infection with high-risk types of human papillomavirus HPV that causes approximately 95% of cervical cancers (WHO, 2023). Other contributing risk factors to cervical cancer include, early onset of sexual activity, having multiple sexual partners, long term use of oral contraceptives, smoking, and weakened immune systems that can be caused by Human immune Virus (HIV) infection (National Cancer Institute,2023).

Cervical cancer itself is not contagious, but the HPV infection that causes it is transmitted sexually through vaginal, anal or oral sex, and through genital skin-to-skin contact (CDC, 2021). Yet, several prevention strategies can significantly reduce the risk of developing cervical cancer. These prevention strategies include HPV Vaccination involving Gardasil vaccines that protects up to 90% of cervical cancer types when best administered before sexual activity begins from 9 to 14 years of age. Countries with widespread vaccination have seen dramatic declines in cervical cancer mortality and precancerous lesions. This is because of Regular Screening: Pap test (cytology) which detects precancerous changes and HPV DNA testing which identifies high-risk HPV infections. The Frequency of these screenings however vary. Pap screening for instance, is expected to happen every 3–5 years after age 30 and HPV testing every 5 years (WHO, 2023). Although not fully protective, safe sexual practices and lifestyle like use of condoms may reduce HPV transmission risk as reducing sexual partners, delaying sexual debut and not smoking are additional protective behaviours (CDC, 2023).

Therefore, unlike many other cancers, cervical cancer is highly preventable through effective screening methods, early counselling and vaccinations which offer numerous advantages to women's health (Arbyn, Wederpass & Bruni, 2020). Sequel to this, the WHO's (2023) Global strategy to eliminate cervical cancer emphasizes "90-70-90" targets. This gears towards ensuring that 90% of girls are fully vaccinated against human papilloma virus (HPV) by age 15, 70% of women screened with a high performance test by ages 35 and 45and 90% of women with cervical disease receive appropriate treatment . Despite these efforts, uptake of cervical cancer counselling and testing services remains suboptimal in many countries. Barriers such as limited awareness, fear of cancer diagnosis, cultural misconceptions and inadequate service provision hinder the progress of this uptake (Arbyn et al, 2020). In high income countries, regular school based vaccination and screening programs have led to significant declines in cervical cancer rate and mortality, demonstrating the effectiveness of preventive strategies (Crosbie, Einstem & Franeschi, 2019). Alarmingly, nearly 90% of the cervical cancer related deaths occur in low- and middle-income countries, where prevention, screening and treatment services remain limited (Arbyn et al., 2020). The disproportionate burden in LMICs reflects

inequities in access to healthcare, weak health systems and low awareness of preventive services.

In sub-Saharan Africa however, cervical cancer accounts for approximately 20% of all female cancers, and remains the second most common cancer among women of reproductive age (Ferlay, Lawersanne, & Ervik 2021). Access to preventive health services in this region is often limited by cultural beliefs, poverty and inadequate health infrastructure (Ilevbare, Adegoke, & Adegoke 2020). Nigeria bears a significant portion of this burden, with about 12,075 new cases of cervical cancer and 7,968 cervical cancer related deaths annually, making it one of the countries with the highest incidence and mortality rates globally (Bruni, Albero, Serrano, Mena, Collado, Gomez, & Bosch, 2022). The high mortality rate is attributed to late presentation, low uptake of screening services, and weak integration of cervical cancer prevention programs within existing health services (Okunowo, Daramola, Soibi-Harry, Ezenwankwo, Kuku, Okunade, & Anorlu., 2021).

Although effective preventive measures; human papilloma virus (HPV) vaccination, routine Pap smear screening and counselling services utilization exists in Nigeria, these measures remain suboptimal. Several studies have consistently reported poor knowledge, misconceptions and low risk perception among Nigerian women as influences behind their willingness to seek cervical cancer counselling and testing services (Ezechi & Gab-Okafor, 2020).Also, studies indicated that cervical cancer prevention remains inadequate among Nigerian women, and uptake of screening services is as well influenced by factors, such as education, socioeconomic status, cultural belief and accessibility of healthcare facilities (Okunowo, et al,2022;Eze,et al, 2023). Furthermore, school health programs rarely integrate cervical cancer education; leaving students without adequate exposure to preventive information (Nnebue, Adogu, Onwasigwe & Ifeadike, 2017). This is why early engagement in preventive practices is critical, as cervical cancer has a long pre-invasive stage, which provides ample opportunities for timely intervention (Arbyn,et al., 2020). However, for effective prevention, interventions must begin during adolescence, when health beliefs and behaviours are formed. This has become germane since health-seeking behaviours established during adolescence strongly influence health practices in adulthood (Akinlotan, Bolin, Helduser, Ojinnaka, Lichorad, & McClellan,2017).

In Nigeria and Enugu state in particular, adolescents and young people represent a vulnerable but critical target group for cervical cancer prevention. Secondary school students fall within this group, and secondary education provides a unique opportunity for early education and counselling for this population, which can significantly influence attitudes towards screening and vaccination in later years (Chidiebere, et al, 2022). Yet, research indicates that Nigerian, and particularly Enugu state adolescents have poor knowledge about cervical cancer and preventive services. For example, a study in Enugu revealed that most secondary school students lacked adequate awareness of cervical cancer risk factors and preventive measures,

leading to low perceived susceptibility (Bisi-Onyemaechi&Chukani,2018). This is particularly concerning as sexual debut is occurring at earlier ages, increasing vulnerability to HPV infection and later development of cervical cancer (Eze, Umeora & Obuna 2021).

The determinants of cervical cancer service uptake among adolescents are multifaceted, involving individual, interpersonal, community and health system factors. At the individual level, knowledge, perceived risk and health beliefs significantly shape adolescents' health seeking behaviours (Champion, Skinner & Meon, 2015). Interpersonal influences, particularly parental approval and peer encouragement have also been shown to play a crucial role in the young women's willingness to seek sexual reproductive health services (Okunowo, et al, 2021). At the structural level, accessibility of friendly health services, affordability and the presence of school based health education determine whether young people can translate awareness into action (UNICEF, 2019).

Barriers to the uptake of cervical cancer counselling and testing among adolescents on the other hand are multifaceted. These include sociocultural norms, stigma, misconceptions that cervical cancer is a disease of older women, limited parental involvement, inadequate adolescent-friendly health services and financial constraints (Ezechi, et al., 2020; Ilevbare, et al., 2020) (Okunowo et al., 2021) .

Enugu State, in southeastern Nigeria, indeed presents a critical context on the determinants and barriers to the uptake of cervical cancer testing and counselling services among secondary school students. This is due to its socio-cultural diversity, high burden of cervical cancer and limited school-based preventive health programs. Despite the growing burden of adolescent reproductive health challenges, there is little empirical evidence on the determinants and barriers influencing cervical cancer counselling and testing uptake among secondary school students in this region. Addressing these factors requires context specific data, especially within Enugu State, where evidence suggests that awareness of cervical cancer prevention is low and uptake of preventive service is poor (Okeke, 2023). It is on this ground that this study investigates the determinants and barriers to the uptake of cervical cancer counselling and testing services among secondary school students in Enugu State to provide a context-specific insights, achieve an evidence-based, culturally appropriate and adolescent-friendly interventions that will contribute to strengthening adolescent reproductive health education, inform school health policies and advance Nigeria's progress toward WHO global strategy to eliminate cervical cancer as a public health problem by 2030.

Statement of the Problem

Cervical cancer remains one of the most pressing public health challenges in low- and middle-income countries (LMICs), where over 85% of global cases and deaths occur (World Health Organization, 2020).This highlights an urgent need for evidence-

driven interventions, particularly those targeting secondary students (adolescents) in Enugu state, who represent a critical population for early health education and preventive action. Indeed, evidence shows that students at the secondary level in Enugu state often demonstrate low knowledge and uptake of sexual and reproductive health (SRH) services, including cervical cancer counselling and screening (Ndikom & Ofi, 2012; Mutyaba, Mirembe, Sandin, & Weiderpass, 2017). This poor knowledge and access to counselling and testing services appear to be compounded by cultural norms, stigma, parental disapproval and financial constraints further compound these challenges, restricting them (Umeobieri, Okoye & Ezugwu 2021). These barriers not only delay preventive action; they contribute to late presentation and poor prognosis in adulthood. In addition, the absence of school based health education program and adolescent friendly counselling services further limits the access to cervical prevention (Obi et al, 2021). Although global and national data point to significant gaps in adolescent uptake of cervical cancer counselling and testing, limited empirical evidence exists on how these determinants and barriers manifest within secondary school populations in Enugu State. Furthermore, most existing studies in Enugu state and Nigeria in general, on cervical cancer have focused on women of reproductive age or university students, leaving secondary school adolescents understudied despite their vulnerability. This critical gap in addressing the uptake of cervical cancer testing and counselling services among secondary school students have indeed become a subject of great concern because of the danger of high mortality posed by cervical cancer. It is on this note that understanding the determinants and barriers against the uptake of cervical cancer testing and counselling services among this younger age group is crucial, especially as adolescence represents a window of opportunity for instilling health-promoting behaviours before sexual debut and adulthood.

Purpose of the Study

The main purpose of this study is to examine the determinants and barriers influencing the uptake of cervical cancer testing and counselling services among secondary school students in Enugu State. Specifically, the study aims to:

1. Assess the level of awareness and knowledge of cervical cancer testing and counselling among secondary school students in Enugu state.
2. Identify the socio-demographic and behavioural determinants of cervical cancer testing and counselling uptake in Enugu state.
3. Explore the barriers hindering uptake of cervical cancer testing and counselling among secondary school students in Enugu state.

Research Questions

The following research questions guided the study.

1. What is the level of awareness and knowledge of cervical cancer testing and counselling among secondary school students in Enugu State?
2. What are the determinants influencing the uptake of cervical cancer testing and counselling services among secondary school the students in Enugu State?

3. What are the barriers to uptake of cervical cancer testing and counselling services among secondary school students in Enugu State?

Hypotheses

The following null hypotheses were tested at $p < 0.05$

1. There is no significant relationship between the level of knowledge of cervical cancer and uptake of uptake of testing and counselling services among secondary school students in Enugu State.
2. Socio demographic factors such as age, class level, socioeconomic status and parental education do not significantly influence uptake of cervical cancer testing and counseling.

Research Methods

Research Design: The study adopted a descriptive cross-sectional survey design. The study was conducted in Enugu State, located in southeastern Nigeria. Enugu State is made up of several educational zones and comprised of 30 female secondary schools. The selected schools represent major girls-only public secondary schools within the state with a total population of 6100 students: Queen's Secondary School Enugu – student population of 2,800, Abakpa Girls' Secondary School Enugu – student population of 2,100, Community Girls' Secondary School Imilike Nsukka – student population of 1,200. The sample size was determined using Taro Yamane's formula**.** Thus, a sample size of 375 students was selected. Sampling Technique employed was multistage sampling**.** First purposive sampling technique was used to sample 3 secondary school from the state while a proportionate stratified random sampling technique was employed to ensure fair representation of each school. The sample size was proportionally allocated based on the population of each school: Queen's Secondary School: 172 students, Abakpa Girls' Secondary School: 129 students, Community Girls' Secondary SchoolImilike74 students**.** Within each school, simple random sampling was used to select respondents. Instrument for data collection was a researcher developed questionnaire, which was validated by three experts in Public Health and measurement and evaluation. The instrument comprised of 12 questionnaire items divided in clusters according to the research questions. A pilot test was conducted among 30 female students in a secondary school outside the study sample to test reliability. The reliability was obtained using Cronbach Alpha statistics which yielded a reliability index of 0.82. The copies of the questionnaires were administered by the researcher and the research assistants who were properly briefed. Completed questionnaires were collected immediately to ensure a high response rate. Data were coded and entered into the Statistical Package for Social Sciences (SPSS) version 25.0. Descriptive statistics (frequencies, percentages, means**,** and standard deviations) were used to summarize the data. For decision rule, items that scored 1-49% were regarded as low level,50-59% as moderate level, 60-100% as high level. Inferential statistics**;** specifically, chi-square tests, were used to test the stated hypotheses at a 0.05 level of significance. The results were presented in tables

with clear interpretations, and organized according to the study objectives and hypotheses.

Results

Research Question 1: What is level of awareness and knowledge of cervical cancer testing counseling among secondary school students in Enugu State.

Table 1 Frequencies and Percentages on awareness and knowledge of Cervical Cancer.

Awareness of Cervical Cancer	Frequency	Percentage %
Aware	160	42.7
Not Aware	215	57.3

The results indicate that less than half of the respondents (42.7%) were aware of cervical cancer, while a majority (57.3%) had no awareness. This shows generally low knowledge levels among students.

Table 2: Awareness of Cervical Cancer Testing and Counseling Services.

Awareness of Cervical Cancer	Frequency	Percentage %
Aware	120	32.0
Not Aware	255	68.0

Only about one-third of the respondents (32.0%) were aware of cervical cancer testing and counseling services, further showing poor exposure to preventive health education.

Research Question 2: What are determinants that influences the uptake cervical cancer testing and counseling services among secondary school students in Enugu State

Table 3. Determinants of Uptake of Cervical Cancer Testing and Counseling Services.

Determinant	Frequency	Percentage %
Parental education	140	37.3
Exposure to School Health Education	110	29.3
Peer Influence	75	20.0
Others	50	13.4

Parental education was the most important determinant (37.3%), followed by exposure to school health education (29.3%). Peer influence also contributed (20.0%), while other factors accounted for 13.4%.

Research Question 3: What are the barriers to uptake f cervical cancer testing and counseling services among secondary school students in Enugu State.

Table 4: Barriers to Uptake of Cervical Cancer Testing and Counseling Services.

Barrier	Frequency	Percentage %
Lack of awareness	250	66.7
Parental disapproval	190	50.7
Fear of pain or diagnosis	220	58.7
Cultural misconceptions	200	53.3
Lack of adolescent-friendly services	230	61.3

The most reported barrier was lack of awareness (66.7%), followed by non-availability of adolescent-friendly services (61.3%). Fear of pain or diagnosis (58.7%), cultural misconceptions (53.3%) and parental disapproval (50.7%) were also major challenges.

Hypothesis 1: there is no significant association between the level of knowledge of cervical cancer and the uptake of testing and counseling.

Table 5: Awareness and Uptake of Cervical Cancer Testing and Counseling.

Awareness of Cervical Cancer	Uptake (%)	Non-Uptake (%)	χ^2	df	P=value	Decision
Aware	65.2	34.8				
Not Aware	28.6	71.4	14.26	2	H_{01}	Rejected

Awareness of cervical cancer significantly influenced uptake of testing and counseling services ($p < 0.05$).

Hypothesis 2: Socio-demographic factors such as age, class level, parental education, socioeconomic status do not significantly influence the uptake of cervical cancer testing and counseling.

Table 6: Socio-demographic Characteristics and Uptake.

Socio-demographic Variable	χ^2	df	p-value	Decision
Age	3.21	2	0.201	Not Significant
Class Level	9.6	2	0.008	Significant.
Parental Education	11.82	2	0.003	Significant
Socioeconomic level	2.74	2	0.251	Not Significant

Class level and parental education significantly influenced uptake, while age and socioeconomic had no significant effect.

Discussion of the Findings

The findings revealed general low levels of awareness and knowledge of cervical cancer and its preventive services in Enugu state. This is despite the disease being one of the leading causes of morbidity and mortality among women in Nigeria. On the awareness and Knowledge of Cervical Cancer, Less than half (42.7%) of the respondents had heard of cervical cancer, and only about one-third were aware of cervical cancer testing and counseling services. This is consistent with findings from previous studies in Nigeria and other low- and middle-income countries (LMICs), which have reported poor awareness among adolescents and young women (Eze, et al., 2022; Ncube, et al., 2020). In contrast, studies from developed countries have documented higher levels of awareness due to widespread health education and school-based vaccination campaigns (Bruni, et al., 2023). The limited knowledge observed in this study highlights the need for intensified school-based health education programs in Enugu State. This study however discovered that students whose parents had higher educational attainment were more likely to report interest in cervical cancer testing and counseling. This finding is supported by Okeke and Onah (2021) who noted that parental education positively influences adolescents' health-seeking behaviours. School health education was also significant in this study as it aligns with the Health Belief Model, which emphasizes knowledge and perceived benefits as motivators for preventive health behaviour (Rosenstock, et al., 1988). Peer influence further underscores the role of social networks in shaping adolescent health decisions, and this is in consistent with similar studies in Kenya and Uganda (Mutyaba, et al., 2019).

Nevertheless, the most frequently reported barriers to the uptake of cervical cancer services were lack of awareness (66.7%), fear of pain or diagnosis (58.7%), cultural misconceptions (53.3%) and non-availability of adolescent-friendly clinics (61.3%). These findings mirror those of comparable studies in Nigeria, where myths, stigma and inadequate youth-friendly services were found to hinder utilization of

reproductive health services (Okeke & Onah, 2021; Abiodun, et al., 2020). The persistence of cultural beliefs and misconceptions suggests that cervical cancer prevention is not only a medical issue but also a socio-cultural challenge that requires community engagement. The lack of adolescent-friendly clinics further reflects systemic gaps in the Nigerian health system, which prioritizes adult women while neglecting preventive care for adolescent Girls.

On the association between awareness and uptake on cervical cancer services among secondary school students in Enugu state, Chi-square tests revealed significant associations between awareness, parental education, peer influence and socio-cultural beliefs as outstanding factors. This finding emphasizes that both individual and contextual factors shape adolescents' health behaviours. It then gives clue that increasing awareness and correcting misconceptions through school-based and community-based health education could significantly improve uptake rates of cervical cancer testing and counseling services among secondary school students in Enugu state.

Conclusion

This study investigated the determinants and barriers to the uptake of cervical cancer testing and counseling services among secondary school students in Enugu State, Nigeria. The findings revealed low levels of awareness of cervical cancer and its preventive services among students**.** This is with less than half of these female students aware of cervical cancer and only one-third aware of testing and counseling services associated with it. Determinants such as parental education, exposure to school health education and class level were found to significantly influence uptake of cervical cancer services among these students. Peer influence also played a role, though to a lesser extent. On the other hand, major barriers included lack of awareness, fear of pain or diagnosis, cultural misconceptions, stigma and unavailability of adolescent-friendly services.

The hypotheses testing confirmed that awareness, parental education and socio-cultural beliefs significantly affect uptake cervical cancer services, while factors such as age and residence did not show significant influence. In the light of these findings, the study concludes that the uptake of cervical cancer testing and counseling services among secondary school students in Enugu State is unacceptably low. Consequently, improving awareness, addressing socio-cultural barriers and providing adolescent-friendly health services on cervical cancer are critical in increasing preventive health behaviours and reducing future cervical cancer burden among secondary female students in Enugu state.

Recommendation

Based on the study findings, the following recommendations are made:

1. To the Ministry of Health (MOH): The Ministry should intensify awareness

campaigns on cervical cancer screening among secondary school students through school health programs and community outreach.

2. To School Authorities: School principals and guidance counsellors should integrate health education sessions on cervical cancer prevention into school curricula.
3. To Non-Governmental Organizations (NGOs): NGOs working in adolescent and reproductive health should support school-based screening programs and provide educational materials.
4. To Parents and Guardians: Parents should be encouraged to discuss reproductive health issues openly with their children to dispel myths and promote early screening behaviour.
5. To Future Researchers: Further studies should explore male students' perceptions of cervical cancer prevention to promote comprehensive adolescent health education

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