

Knowledge, Attitude and Perception of Women Of Child Bearing Age Regarding Cervical Cancer Vaccination in Gesse Area of Birnin Kebbi Metropolis, Kebbi State, Nigeria.

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ABSTRACT

Cervical cancer remains an important public-health problem in Nigeria, although much of its burden can be reduced through human papillomavirus (HPV) vaccination and appropriate screening. Despite the availability of HPV vaccination, awareness and uptake remain limited in some communities. This study assessed the knowledge, attitudes, and perceptions of women of childbearing age regarding cervical cancer vaccination in Gesse Phase 1, Birnin Kebbi, Kebbi State, Nigeria. A descriptive cross-sectional survey was conducted among women of reproductive age residing in Gesse Phase 1. Data were collected using a self-structured questionnaire covering sociodemographic characteristics, awareness, vaccination history, perceptions, and factors influencing vaccination. Convenience sampling was used. The questionnaire was assessed for validity, and test-retest reliability produced a coefficient of 0.89. Data were summarized using frequencies and percentages. The results presented in the manuscript comprised 100 respondents. Forty-five percent had heard about cervical cancer vaccination, while 55 % had not. Reported vaccination uptake was 10 %, with 90 % of respondents reporting that they had not received the vaccine. Regarding vaccine type, 88 % could not identify the vaccine, while 10 % identified Cervarix and 2 % identified Gardasil. Perceptions of vaccine effectiveness were generally favourable: 50 % considered the vaccine very effective and 28 % considered it effective, while 22 % selected neither category. Government support was the most frequently reported factor encouraging vaccination (40 %), followed by health condition (23 %), working condition (21 %), and husband's decision (16 %). Despite generally positive evaluations of vaccine efficacy, the study discovered low awareness and reported uptake of cervical cancer immunisation among women assessed in Gesse Phase 1. Improving access to correct information, strengthening provider-led counselling, and supporting vaccination programs may all assist to close the gap between awareness, perceptions, and actual vaccine uptake. These findings should be interpreted within the limitations of the study design and sampling approach.

Keywords: Cervical Cancer, Health Problem, Vaccination, Women, Childbearing.

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I. Introduction.

Cervical cancer is still a leading source of morbidity and mortality among women worldwide, particularly in low- and middle-income nations like Nigeria. It is a malignant tumour of the cervix that can be asymptomatic in its early stages. It is the second most frequent cancer among women worldwide, and one of the major causes of cancer-related fatalities. Early screening and vaccination against oncogenic Human Papillomavirus (HPV) is an important prevention method, with HPV vaccination having been shown to be very successful in preventing cervical cancer when delivered prior to sexual encounter. Cervical cancer is a major problem in Nigeria that causes thousands of new cases and deaths every year. It is preventable and treatable and available in many countries. Reports indicate that approximately 26 Nigerian women die daily from cervical cancer, and the country ranks among the highest globally in cervical cancer mortality¹.

Prince (2016), stated that in Canada, July 2011 the human papilloma Virus vaccines were developed to fight against the spread of cervical cancer to women of child-bearing age 9 to 26 years, it also prevents genital warts. Currently, all Canadian provinces and territories found HPV School based immunization programme for female, the two provinces have implemented HPV immunization programme for female².

Ugwu (2015) stated that cervical cancer vaccination was introduced in September 2012, at Enugu State to prevent the spread of the virus that causes the disease; it was introduced to women particularly girl's age 13-26 years. Cervical cancer is one of the leading causes of death among young adult in Enugu State, Nigeria³. Cervical cancer is a largely preventable disease, but worldwide it is one of the leading causes of cancer death in women mostly low income countries (Isak, 2016)⁴. The vaccination is aimed to prevent the virus (HPV) from spreading. According to Ifeoma (2016), not fewer than 26 Nigerian women die daily as a result of cervical cancer⁵. She also observed that these women are mostly sexually active women; this observation was made on 10th June, 2016. Mrs. Okoye also the founder, Breast without Spot (BWS) Initiative, a non-governmental organization, made the

disclosure at the inauguration of a school based cervical cancer vaccination awareness initiative. She stated that cervical cancer kills more women worldwide than HIV/AIDs, tuberculosis and malaria put together.

Okoye (2016) conducted a survey and discovered that cervical cancer is the second killer cancer among women and Nigeria is also the tenth in cervical cancer death worldwide⁶. She stated that the cervical cancer vaccinations are available in Lagos State, that the government will as soon as possible make the drugs affordable and accessible to a common man. In Kebbi State, cervical cancer remains a leading cause of death among women despite efforts by government and non-governmental organizations to improve awareness and vaccination coverage⁷. However, vaccine uptake remains low, possibly due to inadequate knowledge, cultural and religious beliefs, and socioeconomic constraints.

This study therefore aims to assess the knowledge, attitudes, and perceptions of women of childbearing age regarding cervical cancer vaccination in Gesse Area of Birnin Kebbi, Kebbi State. It specifically seeks to determine the level of acceptance of cervical cancer vaccination, examine attitudes toward vaccination, and identify cultural and socioeconomic factors influencing uptake. The significance of the study lies in its potential to provide evidence for improving public health education, guiding government interventions, and supporting strategies to reduce the burden of cervical cancer in the population. The study is guided by research questions focusing on the level of acceptance of cervical cancer vaccination among women, their attitudes toward the vaccine, the extent to which cultural values affect acceptance, and the socioeconomic factors hindering uptake.

II. MATERIALS AND METHODS

Study Area

The study was conducted in Gesse Phase 1, a residential area within the Birnin Kebbi urban area of Birnin Kebbi Local Government Area, Kebbi State, northwestern Nigeria. Birnin Kebbi, the state capital, lies within the Sokoto Basin, a sedimentary basin in northwestern Nigeria. Gesse Phase 1 is located approximately between 12°27'16"–19" N and 4°12'11"–55" E; these coordinates represent the study area rather than a single sampling point. The immediate geological setting is predominantly associated with the Gwandu Formation its characterized by red and mottled massive clays intercalated with coarse- to medium-grained sandstone and mudstone, with ferruginous and lateritic horizons occurring locally.

The area was developed by the Kebbi State Government and, according to the study information, was commissioned by the late General Sani Abacha on 26 August 1996. Development reportedly began with about 100 one and two bedroom flats. The area has since expanded to approximately 1,500 houses and an estimated population of 3,600. The community includes a substantial working class population and several facilities, including a Juma'at mosque, an Islamic training school, a clinic, a vesicovaginal fistula clinic, an orphanage, the Ministry of Women Affairs, and legislative quarters. The area is headed by a Mai Unguwa, identified in the study information as Muhammad Lawal Sardauna.

These characteristics provide the social and service delivery context for examining awareness and uptake of cervical cancer vaccination. However, population, housing, commissioning, and local leadership details were not independently documented in the supplied manuscript and should be verified against official records before submission.

Study Design.

A descriptive cross sectional survey design was used to assess awareness of cervical cancer vaccination among women of reproductive age in Gesse Phase 1, Birnin Kebbi, Kebbi State. The design permits description of knowledge, awareness, vaccination history, information sources, and perceptions at the time of the survey, but it cannot establish causal relationships or determine whether exposure to information preceded vaccination uptake.

Study Population.

The target population comprised women of reproductive age residing in Gesse Phase 1, Birnin Kebbi. The supplied study materials refer to women of childbearing or reproductive age but do not specify the operational age range.

Eligibility Criteria.

Inclusion Criteria. Women of reproductive age residing in Gesse Phase 1, Birnin Kebbi who met the eligibility criteria for the study at the time of data collection were included.

Exclusion Criteria. Children and girls below 18 years of age in Gesse Phase 1, Birnin Kebbi metropolis, were excluded. Because the study focuses on women of reproductive age, the 18-year threshold should be stated explicitly and reconciled with the study's target population and the age group for routine HPV vaccination.

Sample Size Determination and Sampling Technique.

Convenience sampling, also described as incidental or opportunity sampling, was used to select respondents. The manuscript also states that 80 nurses were selected using a percentage-based approach attributed to Elechi (2012)⁸, in which 40% is used when the population is a few hundred, 20% when it is many hundreds, and 10% when it exceeds 1,000.

Research Instrument.

Data was collected using a self- structured questionnaire to assess the knowledge, attitude and perception of women of childbearing age toward cervical cancer vaccination. Section A contained sociodemographic information. Section B contained items on study objectives.

Validity of the Instrument.

The questionnaire was guided by the relevant literature and reviewed for adequate content representation of the study constructs. The instrument was evaluated for face and content validity by the statistician and for content validity.

Reliability of the Instrument.

Reliability was assessed using a test-retest procedure. The questionnaire was administered twice to 20 respondents from a non-selected area considered similar to the study population. A reliability coefficient of $r = 0.89$ was used, indicating high test-retest consistency.

Data Analysis.

Respondents' sociodemographic characteristics and responses relating to cervical cancer vaccination were summarized using frequencies and percentages. Individual questionnaire items were presented according to the distribution of responses. This approach is appropriate for descriptive analysis of categorical survey data. The study addresses knowledge, attitudes, and perceptions which were used to provide the denominator for each analysis.

III. Results.

Sociodemographic Characteristics of Respondents.

Respondents aged 26–30 years constituted the largest age group (40 %), followed by those aged 21–25 years (33 %), 15–20 years (16 %), and 31 years and above (11 %). Thus, most respondents were between 21 and 30 years of age.

Table no 1: Age distribution of respondents.

Age group	Frequency	Percentage (%)
15–20 years	16	16
21–25 years	33	33
26–30 years	40	40
31 years and above	11	11
Total	100	100

Hausa respondents accounted for 76 % of the sample, followed by other ethnic groups (11 %), Yoruba (6.5 %), and Igbo (6.5 %). Muslims constituted 71 % of respondents and Christians 29 %.

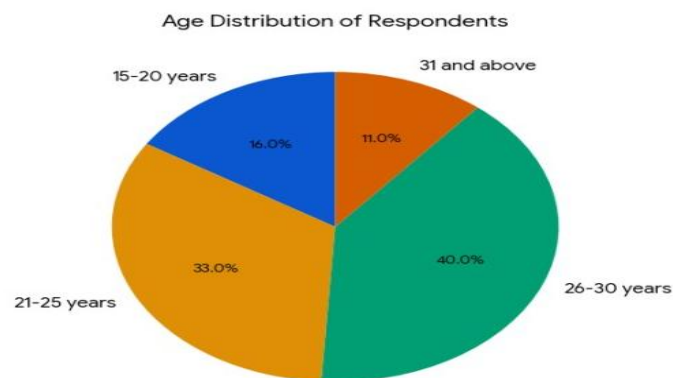


Figure 1: Pie Chart of age distribution.

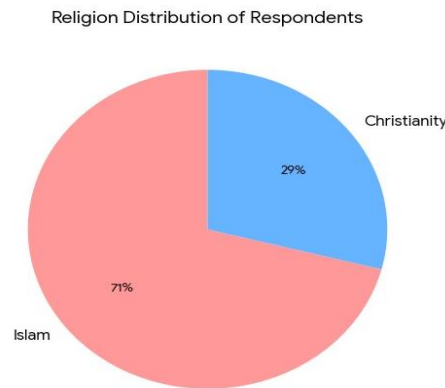


Figure 2: Pie Chart of religion distribution.

By occupation, housewives accounted for 40 %, businesswomen 36 %, civil servants 14 %, and students 10 %. Most respondents were married (60 %), while 30 % were single, 7 % divorced, and 3 % separated.

Table no 2: Occupation of respondents.

Occupation	Frequency	Percentage (%)
Student	10	10
Business women	36	36
Housewives	40	40
Civil servants	14	14
Total	100	100

Table no 3: Marital status of respondents.

Marital status	Frequency	Percentage (%)
Married	60	60
Single	30	30
Divorced	7	7
Separated	3	3
Total	100	100

The sociodemographic profile provides context for interpreting awareness and vaccination uptake. Marital status, occupation, household responsibilities, and access to health information may shape opportunities to receive preventive-health information and seek vaccination.

Awareness of Cervical Cancer Vaccination

Forty five percent (45 %) of respondents reported that they had heard about cervical cancer vaccination, whereas 55 % had not. This indicates that awareness of HPV vaccination was not widespread within the surveyed population.

Table no 4: Awareness of cervical cancer vaccination.

Response	Frequency	Percentage (%)
Yes	45	45
No	55	55
Total	100	100

The finding is consistent with previous Nigerian studies in which awareness of HPV vaccination was lower than awareness of cervical cancer. Akanbi *et al.* (2015), in a survey of 737 women in southwestern Nigeria, reported that 27.1% had heard of HPV vaccination⁹. Morhason-Bello *et al.* (2015) reported awareness of 4.6% among 1,002 women of reproductive age in Ibadan¹⁰. Differences in setting, sampling, timing, and questionnaire design limit direct comparison with the present study, but these studies provide relevant Nigerian evidence of persistent gaps in HPV vaccine awareness.

Awareness has also differed greatly among populations with differing levels of exposure to health information. In southwest Nigeria, Adejuyigbe *et al.* (2015) found 69.3 awareness among medical students¹¹. Adeniyi *et al.* (2023) found limited knowledge and concerns about HPV vaccination among in-school adolescents in Ibadan¹². These discrepancies highlight the need to consider the population and information environment when interpreting estimates of awareness.

Sources of Information on Cervical Cancer Vaccination

Among respondents who reported having heard about cervical cancer vaccination, mass media was the most frequently reported source of information (44.7 %). Neighbor's accounted for 21.0 %, while antenatal clinics and other sources each accounted for 17.1 %. The findings indicate that media channels may be an important route for communicating information about HPV vaccination.

Table no 5: Sources of information among respondents who had heard about cervical cancer vaccination.

Source	Frequency	Percentage (%)
Antenatal clinic	8	17.1
Mass media	21	44.7
Neighbour	10	21.0
Other places	8	17.1
Total	47	100

The importance of mass media is consistent with findings from other Nigerian studies. Akanbi et al. (2015) showed that television and radio were important sources of information on HPV among women⁹, while Ezenwa et al. (2013) reported that media and health workers were important sources among mothers in Lagos¹³. Adeniyi et al. (2023) also found social media to be a leading source of HPV-related information among adolescents in Ibadan¹². Together, these results support the use of multiple communication channels.

Antenatal clinics accounted for 17.1 % of reported information sources. This finding does not by itself indicate that antenatal services are ineffective; rather, it may point to an opportunity to strengthen counselling on HPV vaccination within maternal and reproductive health services. Healthcare workers can provide evidence-based information, address misconceptions, explain eligibility and schedules, and direct eligible individuals to vaccination services.

Uptake of Cervical Cancer Vaccine.

The vaccination uptake rate among the respondents was low. Just 10% said they had the cervical cancer vaccine and 90% said they had not. This finding suggests that the uptake of cervical cancer vaccination in Gesse Phase 1 among women of reproductive age is limited, despite the potential role of HPV vaccination in the prevention of cervical cancer.

Table no 6: Reported cervical cancer vaccination uptake.

Response	Frequency	Percentage (%)
Yes	10	10
No	90	90
Total	100	100

The estimated 10% uptake in the sample surveyed was low. Other studies from Nigeria have also reported low uptake of HPV vaccine. For instance, in 2024, Akinnibosun et al. found that 13.7 % of pregnant women in Otukpo had at least one dose of the HPV vaccine. Direct comparisons should be made with caution due to differences in populations, settings and vaccination context.

Knowledge of Vaccine Type and Perceived Effectiveness

The study reports that 88 % of respondents could not identify the type of cervical cancer vaccine they had received or encountered, while 10 % identified Cervarix and 2 % identified Gardasil. This indicates limited product-specific knowledge. However, inability to recall a vaccine brand does not necessarily mean that a respondent lacked general knowledge about HPV vaccination.

Table no 7: Reported vaccine type.

Vaccine type	Frequency	Percentage (%)
Gardasil	2	2
Cervarix	10	10
Unknown	88	88
Total	100	100

For perceived effectiveness, 50 % rated the vaccine as very effective, 28 % as effective, and 22 % selected neither category. Thus, despite the reported low uptake, perceptions of vaccine effectiveness were not uniformly negative among respondents who answered this item.

Table no 8: Perceived effectiveness of cervical cancer vaccination.

Rating	Frequency	Percentage (%)
Very effective	50	50
Effective	28	28
Neither	22	22
Total	100	100

It is notable that limited awareness or uptake was combined with relatively favourable perceptions. Akanbi et al. (2015) reported low baseline awareness but 77.2 % of respondents were willing to receive HPV vaccination after receipt of information⁹. This pattern suggests that willingness and actual uptake can be influenced by factors other than general acceptance, including information, access and availability of services.

Factors Encouraging Vaccination

Government support was the most frequently reported factor encouraging vaccination (40 %), followed by health condition (23 %), working condition (21 %), and husband's decision (16 %). These responses indicate that vaccination may be influenced by institutional support, perceived health needs, occupational circumstances, and household decision-making.

Table 3.9. Reported factors encouraging vaccination.

Factor	Frequency	Percentage (%)
Husband's decision	16	16
Health condition	23	23
Working condition	21	21
Government	40	40
Total	100	100

The importance of government support is consistent with the role of organised vaccination programs in improving access and reducing financial or logistical barriers. Cost, distance, lack of information, and service availability have been cited as barriers to HPV vaccination among Nigerian parents and women^{14,15}. The fact that the husband's decision explained 16 % of responses also indicates that household structures and social relationships could influence vaccination decisions.

IV. Discussion.

The findings show limited awareness, low reported vaccination uptake, limited ability to identify vaccine type, and generally favourable perceptions of vaccine effectiveness among respondents who expressed an opinion. This pattern points to a possible gap between exposure to information, perceptions of vaccination, and actual use of the vaccine. Similar studies in Nigeria have also shown that awareness does not always translate into vaccination, and access, cost, availability, contact with health system, social influences, and safety concerns may affect uptake^{12,13,14,15}.

Healthcare workers may have an important role in closing this gap. Only 17.1 % of respondents who had heard about vaccination identified antenatal clinics as their information source. Healthcare workers have identified as an important source of HPV information, especially in clinical settings¹⁴. Provided counselling could thus supplement mass-media communication in adapting information to individual concerns and circumstances.

HPV vaccination should be considered in conjunction with cervical cancer screening. Vaccination provides the primary prevention, whereas screening is used to support secondary prevention and is still required as vaccination does not eliminate the risk of cervical cancer. WHO guidance states that HPV vaccination, screening and treatment are complementary components of cervical cancer prevention and elimination. Several Nigerian studies have reported gaps in awareness and uptake of HPV vaccine. In 2015, Morhason-Bello *et al.*, found 4.6 % awareness among women of reproductive age in Ibadan¹⁰, while Akanbi *et al.* (2015) reported 27.1% awareness among women in south-western Nigeria⁹. Akinnibosun *et al.* (2024) reported that 13.7% of pregnant women in Otukpo had received at least one dose of the HPV vaccine⁹. These estimates are not directly comparable with the present findings, but provide context for the reported levels of awareness and uptake. Awareness and knowledge have differed across study populations. Adejuyigbe et al. (2015) found that medical students had greater awareness¹¹ and Enebe *et al.* (2021) reported that 41.9 % of female secondary school teachers in Enugu had good knowledge about cervical cancer vaccination and high acceptability of the vaccine¹⁶. Variations between studies may be due to differences in education, occupation, age, access to health information and program context. Comparisons should therefore be made with due regard to the population characteristics and period of data collection.

Differences in education, occupation, age, access to health information, and programme context may contribute to variation between studies. Comparisons should therefore take account of both population characteristics and the period in which data were collected. Willingness to receive vaccination may also differ from actual uptake. But the willingness to get vaccinated may not translate to actual use. Provision of information to respondents about HPV vaccination increased willingness⁹. Other studies have identified potential barriers to the use of the services such as side effects, cost, social or religious considerations, distance to services and inadequate information^{12,15}. That government support was the most frequently cited encouragement factor corresponds to the wider importance of program support and access in vaccination decisions. The present finding that government support was the leading reported encouragement factor is consistent with the broader importance of programme support and access in vaccination decisions.

V. Conclusion

The study found that awareness of cervical cancer vaccination was limited among women surveyed in Gesse Phase 1, and reported vaccination uptake was low. Although only 10% of respondents reported having received the vaccine, perceptions of its effectiveness were generally favourable, with 78 % rating it as either effective or very effective.

These findings therefore suggest a disconnect between attitudes to vaccination and uptake. Mass media was the most common reported source of information on vaccination. Antenatal clinics were a smaller proportion of reported information sources. The factor most often identified as encouraging vaccination was government support, indicating the importance of organised vaccination programs and institutional support. Some respondents also identified decision-making within households as a factor.

The findings highlight the need for clear and accessible information on HPV vaccination, more counselling through health care services and continued program support to improve access and uptake. HPV vaccination should be offered with cervical cancer screening and other preventive services, because vaccination does not eliminate the need for screening. The cross-sectional study design and convenience sampling resulted in findings that are representative of the surveyed population but not generalizable to all women of reproductive age in Kebbi state without further evidence.

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