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Impact of cervical cancer vaccinations campaigns and acceptance among female students in Al-Hikmah university

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ABSTRACT

This research investigates the impact of cervical cancer vaccination campaigns and the level of acceptance among female students in Al-Hikmah University. Cervical cancer remains a significant health threat globally, particularly in developing countries, where vaccination programs play a crucial role in prevention. This study evaluates the effectiveness of campaigns aimed at raising awareness and promoting vaccination among young women, a demographic at high risk for the disease.Quantitative research approach was adopted with the use of survey method for the purpose of this study. The population of the study is the Students of Al-Hikmah University with a total number of 5,779 for 7 faculties in 2024. The findings reveal that the acceptance level of cervical cancer and the vaccine is relatively high, there remains a gap in actual vaccine acceptance. Factors such as misconceptions, fear of side effects, and cultural or religious beliefs were identified as key barriers to vaccine uptake. Fairly, these challenges, the majority of respondents expressed willingness to receive the vaccine if given adequate information and reassurance regarding its safety. This research underscores the importance of targeted health campaigns and education initiatives to dispel myths, increase vaccine acceptance, and ultimately contribute to the reduction of cervical cancer incidence. The study recommends enhancing the content of acceptance campaigns, incorporating culturally sensitive messaging, and improving access to vaccination services within the university setting.

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1. INTRODUCTION

Cervical cancer is a prevalent sexually transmitted disease, primarily caused by the human papillomavirus (HPV), which poses a significant risk to women worldwide (W.H.O, 2021). Persistent HPV infections, particularly in the cervix, elevate the risk of developing cervical cancer, while precancerous cell changes can occur when high-risk HPV persists and infects cells in the vulva, vagina, penis, or anus (W.H.O, 2022). Cervical cancer ranks as the second most common disease globally in terms of morbidity and mortality, particularly affecting low- and middle-income countries like Nigeria (W.H.O, 2022). Cervical cancer is primarily caused by high-risk HPV strains, making HPV a significant risk factor for the disease (W.H.O, 2022). HPV is the most common sexually transmitted infection, with approximately 5% of those infected being women living with HIV (W.H.O, 2023). Screening for cervical cancer is essential for its eradication, as more than 80% of sexually active women are infected with HPV at some point in their lives, even in countries with robust screening programs (Staley, Shiraz, Shreeve & Bryant, 2021). The World Health Organization (WHO) promotes cervical cancer prevention and control programs, including HPV vaccination and other precautionary measures. In developed countries, cervical cancer rates have decreased significantly due to measures such as HPV vaccination and cytology-based screening programs (W.H.O, 2022). Nigeria initiated HPV vaccination in 2018, targeting early teenage girls through schools, but faced challenges due to misinformation (Ezeanochie & Olasimbo, 2020).

Before introducing national cervical cancer prevention programs, extensive research to increase awareness, acceptance, and adoption of services like immunization must be conducted (W.H.O, 2022). The HPV vaccine, also known as the cervical cancer vaccine, offers protection against most genital warts and cervical cancer cases (W.H.O, 2021). It is highly recommended for girls between the ages of 9 to 14, with two doses administered for girls younger than two years and three doses for older girls (Tariku, 2021). In Nigeria, the HPV vaccine rollout aimed to vaccinate approximately 6 million females aged 9 to 14 as part of the routine immunization program. Due to global vaccine shortages, the vaccine initially targeted 14-year-old girls, with plans to expand to additional age groups as vaccine availability increased (NAN, 2023). The HPV vaccine efficiently prevents most HPV infections linked to cervical cancer, especially the nine high-risk HPV strains responsible for 75 to 90 percent of cervical cancer cases (W.H.O, 2022). HPV vaccination is most effective when administered before the onset of sexual activity and HPV exposure, but it can still protect adults from new HPV infections (CDC, 2019). The vaccine's introduction has increased financing for immunization in low- and middle-income countries, supported by organizations like the Global Alliance for Vaccine and Immunisation (GAVI) (W.H.O, 2022). Education and awareness programs are vital for increasing HPV vaccination rates, especially in underserved populations (Yilma et al., 2022). Campaigns for cervical cancer prevention have used storytelling and individual experiences to create engaging messaging, which can be effective in changing attitudes and behaviors (Bryan, 2017). However, health campaigns that focus solely on individual behavior change may overlook the societal factors contributing to health disparities, potentially leading to ineffective or harmful outcomes, particularly among underserved populations (Knobloch-Westerwick et al., 2020). To address communication inequalities and health disparities, health interventions should consider multilevel approaches, engaging with various communication networks in communities, including community organizations and local and ethnic media (Moran, 2016). These strategies can help bridge gaps in healthcare access and provide more equitable health outcomes.

In summary, cervical cancer remains a significant global health challenge, but HPV vaccination and awareness campaigns offer promising avenues for prevention. Effective prevention programs should consider a combination of vaccination, education, and multilevel interventions to reduce the burden of cervical cancer, particularly in underserved populations.

1.1 Problem Statement

In 2021, the Pan African Medical Journal reported that awareness and acceptance of the cervical cancer vaccine are generally high worldwide. Previous studies conducted in several states of Nigeria, including Taraba, Enugu, and Lagos, aimed to change participants' perceptions of cervical cancer and HPV vaccine acceptability. However, these studies did not include other segments of the female population that had not been previously investigated. While assessments of awareness and perceptions have been completed among educators and older women who are mothers and considered sexually active, studies on adolescents and young adults, who make up a significant portion of the female population, are limited. Therefore, this study aimed to identify these characteristics among female students at Al-Hikmah University, Ilorin, Kwara State. Although cervical cancer is often considered a scary diagnosis in our culture, minimal research has been published on willingness to pay (WTP) for the HPV vaccine in Africa and Nigeria (Odetola, E. 2021). Furthermore, preventing the spread of the disease may help reduce the human suffering that comes with it. In addition, information on cervical cancer vaccination campaigns, awareness-raising efforts, and adoption efforts in the specific areas selected for this study is limited. This knowledge gap provides an opportunity for research, which is the primary objective of this study. Therefore, the purpose of this study was to examine the impact of the HPV vaccination campaign, including cervical

cancer vaccination, on the knowledge level and acceptance of female students at Al Hikmah University.

Generally, this study intent to unveil acceptance of cervical cancer campaign among female students of Al-Hikmah University. Specifically, this study aims to;

- To determine the level of Campaign of cervical cancer among Al-Hikmah University female Students
- To determine the level of acceptance of the cervical cancer vaccine campaign among Al-Hikmah University female Students
- To ascertain the extent at which campaign encourages the uptake of Cervical Cancer vaccine among Al-Hikmah University female Students.
- To ascertain the attitude of Al-Hikmah university female students on Cervical Cancer vaccination.

1.2 Research Questions

- What is the level of awareness of cervical cancer among Al-Hikmah University female Students?
- What is the level of acceptance of the cervical cancer vaccine campaign among Al-Hikmah University female Students?
- What is the extent at which campaign encourages the uptake of Cervical Cancer vaccine among Al-Hikmah University female Students ?
- What is the attitude of Al-Hikmah university female students on Cervical Cancer vaccination campaign?

2. LITERATURE REVIEW

2.1 Concept of Cervical Cancer

Cancer is a group of diseases characterized by the uncontrolled growth of abnormal cells that can invade and damage healthy tissues in the body (Wu, 2019). The ability of cancer to spread throughout the body is a common feature, and it is the second leading cause of death worldwide (Wu, 2019). However, advances in cancer diagnosis, treatment, and prevention have improved survival rates for many types of cancer. Cancer development is primarily associated with changes (mutations) in the cellular DNA (National Cancer Institute, 2019). The DNA of each cell contains several genes, each of which provides instructions for specific cell functions, growth, and division. Misdirection can disrupt normal cell function and contribute to the development of cancer (National Cancer Institute, 2019). Cervical cancer develops in the cells lining the cervix, the lower part of the uterus (uterus) that connects to the vagina (Fontham, 2020). It usually starts when cells in the body begin to multiply uncontrollably (Castellsagué et al., 2017). Cervical cancer is the second leading cause of death among women worldwide, particularly in developing countries, and is the most common reproductive cancer among women in these regions (Castellsagué et al., 2017). The World Health Organization (WHO) recognizes cervical cancer as a major public health problem, largely because of inadequate screening practices in developing countries, which result in high mortality rates among women. Despite the availability of human papillomavirus (HPV) vaccines, cervical cancer remains prevalent in developing countries (Fontham, 2020).

2.2 The Situation of Cervical Cancer in Nigeria

Nigeria has approximately 60.9 million women aged 15 and older who are at risk of developing cervical cancer (Enebe et al., 2021). Current statistics indicate that 7,968 women die from cervical cancer annually, with 12,075 new cases diagnosed each year. Cervical cancer ranks as the second most common cancer among Nigerian women and the second most common cause of death among women aged 15 to 44 (Enebe et al., 2021). High-risk HPV strains, primarily HPV-16 or HPV-18, are responsible for 66.9% of invasive cervical cancers in Nigeria, affecting around 3.5% of the female population (Okunola, 2022). Despite Nigeria's population accounting for just 1% of the global total, it bears the highest cervical cancer burden in Africa and contributes 10% to the global burden of cervical cancer (Enebe et al., 2021). In 2018, only 8.7% of Nigerian women received a Papanicolaou (Pap) smear, a test for cervical cancer (Olaitan, 2022). As of 2019, only private healthcare facilities in Nigeria offer HPV vaccines to prevent cervical cancer caused by HPV. Additionally, 3.5% of women in the general Nigerian population currently carry cervical HPV-16/18 infection, and the HPV vaccine has the potential to prevent cervical cancer with just one dose (Olaitan, 2022). More than 12,000 Nigerian women are estimated to be diagnosed with cervical cancer each year, with over 8,000 succumbing to the disease. While cervical cancer is the second most common cancer among Nigerian women aged 15 to 44, other factors such as healthcare system challenges and limited funding contribute to the complexity of the issue. Nigeria's healthcare system has seen a decline from being on par with the global standards in the 1970s and 1980s to becoming one of the least funded and least stable systems worldwide (Okunola, 2022). In Nigeria, there is a shortage of healthcare staff, with fewer than 90 oncologists in 2021, equating to less than one doctor for every 1,000 residents (Okunola, 2022). Additionally, inadequate funding has been an ongoing issue, with Nigerian administrations allocating less than 10% of the national budget to healthcare, despite committing to allocate at least 15% as per the Abuja Declaration in 2001 (Okunola, 2022). Consequently, millions of Nigerian women lack access to high-quality healthcare, placing them at higher risk if diagnosed with cervical cancer (Okunola, 2022).

2.3 Health Belief Model

The Health Behaviour Model (HBM) is one of the earliest health behavior theories, originating in the 1950s at the US Public Health Service and developed by social psychologists including Irwin, Rosenstock, Godfrey Hochbaum, Stephen Kegeles, and Howard Leventhal (Janz & Marshall, 2022). It remains one of the most well-known and frequently used theories in health behavior research. The HBM was formulated during a time when mobile X-ray units visited neighborhoods to screen for tuberculosis (TB), but there was concern about low participation rates. This model has been widely applied to predict various health-related behaviors, including early disease detection screenings and immunizations (Janz & Marshall, 2022). More recently, it has been used to understand vaccination intentions (especially during the COVID-19 pandemic), responses to disease symptoms, medication adherence, lifestyle choices (such as sexual risk behaviors), and behaviors related to chronic illnesses that require long-term behavior change and maintenance. Relevance of this theory to the study: The Health Belief Model, as mentioned earlier, emphasizes that individuals must weigh the potential benefits of adopting a recommended behavioral change. In the context of cervical cancer, organizations focus on educating women about the measures they can take to enhance their safety. The Health Belief Model offers valuable insights into the necessary steps to reach more women and persuade them to take these essential safety measures. It's not surprising that gender, as a modifying variable, plays a significant role in applying the Health Belief Model to women's awareness.

2.4 Theory of Reasoned Action (TRA)

The Theory of Reasoned Action (TRA) was developed in 1980 by Ajzen and Fishbein as an evolution of their research on attitude within the Expectancy Value Models (Ajzen, 2002). While investigating the gap between attitude and behavior, Ajzen and Fishbein formulated the TRA, specifically focusing on voluntary behaviors. Later, they added the concept of perceived behavioral control, recognizing that behavior is not entirely a matter of free will. Following this addition, the theory was renamed the Theory of Planned Behavior (TpB). The Theory of Planned Behavior predicts deliberate behaviors because behavior can be purposeful and planned (Ajzen, 2002).

2.5 Conceptual Model of Reasoned Action Theory

This theory is applicable to this study as it elucidates the response of female students at Al-Hikmah University to the Human Papilloma Virus (HPV) Vaccine campaign. It underscores that people's intention regarding disease plays a pivotal role in shaping their attitude toward receiving the vaccine. Whether individuals intend to engage with the Cervical Cancer Vaccination campaign against cervical virus is influenced by their personal beliefs and perceived effectiveness of the vaccine. The communication efforts targeting cervical cancer among women, particularly female students at Al-hikmah university, have a significant impact on their perceptions. Subsequently, their attitude towards receiving the vaccine is shaped by their intentions.

3. METHODOLOGY

This study adopted a quantitative research approach with the use of a survey method to gather empirical data on the perception of Al-Hikmah University female students regarding the cervical cancer vaccination campaign. The quantitative approach was chosen because it allows for the collection of numerical data that can be statistically analyzed to determine the relationships between variables. The population for this study consists of female students from Al-Hikmah University, with a total of 2,898 female students, as provided by the university's academic unit for the 2023/2024 academic session. The total student population across 7 faculties was 5,779. To determine the sample size, the Krejcie and Morgan formula was applied, which resulted in a sample size of 351 respondents. A sample of this size is statistically representative and sufficient for the analysis of student perceptions. The sample was selected using simple random sampling from the total female student population. The primary instrument for data collection was a questionnaire, which was designed to assess students' awareness, perceptions, and attitudes toward the cervical cancer vaccination campaign. The questionnaire was distributed via Google Forms and shared in departmental group chats to reach a diverse group of students. The questionnaire consisted of multiple-choice questions with a Likert scale (ranging from 1 = Strongly Agree to 5 = Strongly Disagree). The instrument focused on the following areas:

- Influence of cervical cancer campaigns on vaccine uptake
- Impact of misinformation on vaccine uptake
- Awareness and knowledge about cervical cancer and the HPV vaccine
- Trust in the vaccine's efficacy and its promotion among peers.
- A total of 347 valid responses were collected after the data was sorted, which is a response rate of approximately 99% of the target sample.

4. DATA ANALYSIS

The collected data were analyzed using the Statistical Package for Social Sciences (SPSS) software. Descriptive statistics, including percentages, mean scores, and standard deviations, were used to summarize the responses. The data were also presented in tables to facilitate clearer interpretation and comparison of findings.

Table 1. Analysis of Opinion and responses of the respondents Campaign encourages the uptake of Cervical Cancer vaccine

Items	Percentage (%)/Frequency					Total
	1	2	3	4	5	
	%/f	%/f	%/f	%/f	%/f	%/f
Cervical cancer Campaigns encouraged the uptake of the Vaccine among Al-hikmah female students	17.28/60	20.19/90	23.05/70	25.91/47	13.54/80	100/347
Misinformation about Cervical Cancer vaccine affected my uptake decision	25.10/87	23.05/80	20.19/70	17.28/60	14.43/50	100/347
Campaign has enlighten me more on Cervical Cancer Vaccine	23.64/82	25.91/90	20.46/71	17.28/60	12.68/44	100/347
The Campaigns on Cervical Cancer vaccine has been effective to arrest misinformation about Cervical Cancer and it's vaccine among Al-Hikmah female student	26.47/92	33.14/115	20.17/70	7.21/25	12.9745	100/347
Cervical Cancer exist	46.68/162	34.58/120	11.53/40	2.88/10	4.32/15	100/347
I trust the efficacy of the vaccination	32.28/112	34.58/120	17.29/60	5.76/20	10.09/35	100/347
I recommend the vaccination to family and friends	36.61/127	31.70/110	20.17/70	4.32/15	7.21/25	100/347
All Al-Hikmah female students should be vaccinated whether sexually active or not	30.84/107	31.70/110	17.29/60	8.65/30	11.53/40	100/347
Girls shouldn't hesitate in taking the vaccine.	69.4/24.1	20.17/70	5.2/18	2.5/9	2.5/9	100/347

**Scale: 1= Strong Agree, 2= Agree, 3= Neutral, 4= Strongly Disagree 5=Disagree*

The vaccination campaign had a significant but mixed effect on vaccination rates. About half of the students felt positively influenced, with 25.91% agreeing and 20.19% strongly agreeing that the campaign encouraged vaccination.

However, not all students agreed, with 17.28% strongly disagreeing. Misinformation was a major factor influencing students' decisions. 25.10% strongly agreed that misinformation prevented them from getting vaccinated, while 23.05% agreed. Nevertheless, some students (17.28%) were not influenced by misinformation.

The campaign improved students' knowledge, with 25.91% agreeing and 23.64% strongly agreeing that they felt more informed after vaccination. However, 20.46% were neutral and 17.28% were opposed, indicating that more comprehensive information dissemination is needed. In terms of efforts to counter misinformation, the campaign was found to be very effective, with more than half of the students agreeing that the campaign helped eliminate vaccine hesitancy. Attitudes toward cervical cancer vaccination Students showed high awareness of cervical cancer, with 46.68% strongly agreeing and 34.58% agreeing that cervical cancer exists. Trust in the vaccine was also generally positive, with 32.28% strongly agreeing that the vaccine is effective, 34.58% neutral, and 17.29% neutral. Many students are willing to advocate for vaccination, with 36.61% strongly agreeing and 31.70% agreeing that they would recommend it to others. However, a significant portion (20.17%) remained neutral on vaccine promotion. The majority of students supported universal vaccination for all female students regardless of sexual activity, but a small minority (11.53%) did not agree. Finally, 69.4% strongly agreed that girls should not hesitate to get vaccinated, reflecting strong support for vaccination and the success of campaigns to reduce vaccination.

4.1 Analyses of Research Questions

Research Question 1: What is the Level of Awareness of Cervical Cancer Among Al-Hikmah University Female Students

The data indicates a high level of awareness of cervical cancer among the respondents. A majority (46.68% strongly agree and 34.58% agree) acknowledged the existence of cervical cancer. This suggests that the campaigns or educational efforts within the university have been effective in raising awareness about the disease. However, a small fraction (11.53% neutral and 7.2% disagree/strongly disagree) reflects that more targeted awareness campaigns might still be needed for complete inclusivity.

Research Question 2: What is the Level of Acceptance of the Cervical Cancer Vaccine Campaign

The acceptance of the cervical cancer vaccine campaign is mixed but leans positively:

Encouragement to uptake: 25.91% agreed, and 20.19% strongly agreed that campaigns encouraged vaccine uptake. This shows that nearly half the respondents were positively influenced by the campaign.

Impact of misinformation: Misinformation remains a barrier, with 25.10% strongly agreeing and 23.05% agreeing that it affected their decisions. However, 17.28% strongly disagreed, showing a split in perceptions.

Efforts to combat misinformation have had a significant effect, with 26.47% strongly agreeing and 33.14% agreeing that the campaign helped address vaccine hesitancy. This suggests moderate success in countering misinformation but highlights the need for more robust information dissemination.

Research Question 3:What is the Extent to Which Campaign Encourages Vaccine Uptake

The campaign has a considerable influence on vaccine uptake:

25.91% agreed, and 20.19% strongly agreed that the campaign encouraged vaccination.

Only 17.28% strongly disagreed, showing that a majority either agreed or were neutral (23.05%).

This indicates that while the campaign successfully motivated many students, there remains a significant group that is either hesitant or unconvinced.

Additionally, 23.64% strongly agreed and 25.91% agreed that the campaign enlightened them about the vaccine, while only 17.28% strongly disagreed. This further emphasizes the role of campaigns in spreading awareness and encouraging vaccination uptake.

Research Question 4: What is the Attitudes of Al-Hikmah University Female Students Toward the Vaccination Campaign

The attitudes toward cervical cancer vaccination are generally positive:

Trust in the vaccine: 32.28% strongly agreed, and 34.58% agreed that they trusted the vaccine's efficacy, while 17.29% were neutral. This indicates that a majority have confidence in the vaccine.

Recommendation to others: 36.61% strongly agreed, and 31.70% agreed they would recommend vaccination to family and friends, showing strong advocacy for the vaccine.

Universal vaccination: 30.84% strongly agreed, and 31.70% agreed that all female students should be vaccinated, indicating a favorable stance toward universal vaccination policies.

Finally, a significant proportion (69.4% strongly agree) strongly supported the statement that girls should not hesitate to get vaccinated, highlighting the campaign's success in promoting vaccination confidence among students.

5. DISCUSSION OF FINDINGS

This study aims to explore the acceptance of the cervical cancer campaign among Al-hikmah university female students. The study is grounded in the Health Belief Model and the Theory of Reasoned Action. To a certain extent, the findings in this study align with the assumptions of these theories and resonate with insights from other scholars in the field. The study revealed that the majority of Al-hikmah university female students are well-informed about cervical cancer, cervical cancer vaccination, and cervical cancer vaccination campaigns. This heightened contributes to their perception that the cervical cancer vaccine is safe. These results differ from

those of Montgomery et al. (2015), who conducted a study in Karnataka, India, and found limited knowledge about the Human Papilloma Virus (HPV) and cervical cancer among women. Additionally, the prevalence of HPV and cervical cancer was low, along with a low perception of infection risk in their study. The study's findings indicate that respondents unanimously recognized cervical cancer in women as a real and existing health condition. They also expressed confidence in the vaccine's effectiveness and encouraged girls to get vaccinated while advising them to share this information with their family and friends. Regardless of their sexual activity status, they advocated for all females to receive the vaccine. This finding is in line with Shelley's 2021 study, which revealed that women were eager to learn more about the vaccine despite concerns about its long-term effects. The study also highlighted the importance of grandmothers in influencing mothers' decisions about their children's health and supported the idea that the government should include the HPV vaccine in the national immunization program.

5.1 Recommendations

- Husbands should play an active role in encouraging their wives to undergo medical tests and receive the HPV vaccine. This is particularly important, as HPV infections, which put women at risk of cervical cancer, are one of the most prevalent sexually transmitted diseases worldwide.
- Special attention should be given to women's reproductive health to prevent viral infections that could disrupt their hormonal systems.
- Healthcare sectors should actively encourage women to visit hospitals for cervical cancer vaccination, emphasizing the importance of timely vaccination. Additionally, women should be educated on maintaining overall health.
- Parents and guardians should motivate their wards to regularly visit healthcare centers for sensitization on cervical cancer and other life-threatening diseases affecting women.

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