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Original Article

Rural Women Human Papillomavirus (HPV) Vaccination Hesitancy: Synthesizing Indigenous Medical, Religious and Traditional Knowledge Systems in Selected Rural Areas in Zimbabwe

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Abstract

Introduction: Uterine cervical neoplasms (UCN) [Cervical cancer] remains a major public health challenge in Zimbabwe, with an incidence rate of 61.7 per 100,000 women, ranking among the highest in Africa. Despite government initiatives to promote UCN screening and the Papillomavirus vaccines (PV) vaccination hesitancy persists among rural women.

Methods: This study explored how Indigenous Traditional Medical Knowledge Systems (ITMKS) and Indigenous Religious Medical Knowledge (IRMK) influence HPV vaccination hesitancy in Zimbabwe. A qualitative case study design was employed with rural women aged 18–60 years purposively selected. Data were collected through 25 individual interviews and six focus group discussions (FGD).

Results: Results revealed three main themes influencing PV vaccination uptake among rural female population. First, herbal remedies and natural foods, reinforced beliefs that traditional treatments are for treating UCN. Second, indigenous religious knowledge systems shaped perceptions of UCN as a spiritual condition that requires faith-based healing practices thus reducing confidence in biomedical interventions. Third, PV vaccine hesitancy was influenced by fear, misconceptions and structural barriers to health facilities.

Conclusion: The study concludes that PV vaccination hesitancy among rural women is mainly influenced by factors which can be grouped into Three Cs (Confidence, Complacency, and Convenience). Integrating indigenous knowledge and indigenous religious beliefs and practices into public health strategies could improve PV vaccination uptake.

Keywords: Rural women, Papillomavirus vaccines, Vaccination hesitancy, Indigenous churches, Traditional medicine, Uterine cervical neoplasms

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Introduction

The Human Papillomavirus [Papillomavirus Vaccines] (PV) information centre noted that PV is a major cause of cervical cancer [Uterine Cervical Neoplasms] (UCN).[1] accounting 70% of UCN cases globally.[1] UCN is the fourth most common cancer in women globally, with 604 127 new cases diagnosed with UCN per annum, of which almost 50% of these patients die from the disease.[1]

The situation in Zimbabwe is more prevalent where the standardised age rate reached 61.7 per 100, 000 women in 2023[1]. This places Zimbabwe the fifth highest in Africa exceeding rates in the Americas and Oceania and three times those reported in Europe and Asia.

Healthcare systems need to incorporate cultural factors in health care awareness, PV vaccination and treatment since in rural areas there is much belief in cultural factors contributing to illness. [2] PV vaccination initiatives require health professionals and health policy makers to be acquainted with medical, traditional and religious knowledge systems. People's acceptance to PV vaccination and treatment is determined by their cultural background and their indigenous traditional medical knowledge systems [ITMKS].[3] Traditional medicine includes medicinal plants, animal parts, spiritual therapies and practices and shrines which are used in a particular community to treat different ailments.

Contrary to ITMKS, Indigenous religious medical knowledge systems (IRMKS) are spiritual beliefs of a given community. IRMKS influence communal health practices and acceptance of PV vaccination and treatment by a religious group. [4] The emergence of African Christianity resulted in the practice of indigenous beliefs in treating

ailments such as PV.[4] According to ITMKS Illness and misfortune are believed to be caused by spiritual factors. [5]

Thus, the main aim of the study was to explore the influence of ITMKS and IRMK and beliefs on PV vaccination hesitancy in rural areas of Shamva and Madziwa near Bindura in Zimbabwe.

The study was guided by the following research questions:

1. What are the indigenous traditional medical knowledge systems on PV, cervical cancer and its vaccination?
2. What are the indigenous religious medical knowledge systems on PV, cervical cancer and its vaccination?
3. Do rural women embrace biomedical PV vaccination as safe and reliable? If not, what are the factors contributing to their hesitancy?

The three research questions have been developed into three thematic areas..

Overarching Theory: The Three Cs Model of Vaccine Hesitancy

The Three Cs model explains vaccine hesitancy based on health and cultural factors influencing vaccination decisions[6]. Vaccine hesitancy is the delay or refusal of vaccination despite service availability[6]. Complacency arises from low perceived disease severity, sometimes reinforced by indigenous knowledge systems offering ready-made solutions. Convenience relates to the availability, accessibility, process, and quality of vaccination services[6]. Confidence involves trust in the safety, reliability, and effectiveness of the PV vaccine[6]. This study uses the Three Cs framework to examine factors influencing acceptance or hesitancy of HPV vaccination and treatment among women in selected rural areas of Zimbabwe.

Methods

Research Paradigm and Design

The interpretive paradigm was adopted in the study. It ascribes to the view that, individuals seek understanding from their lived experiences [5] The interpretive paradigm was appropriate for this study because PV vaccine hesitancy is a socio-cultural phenomenon shaped by cultural norms[7] and lived experiences[8]. Further, rural women's decisions regarding vaccination are influenced by multiple contextual factors.

A case study of Madziwa and Shamva rural women was adopted. A case study is "a study of a case in a context"[9(p18)] and enables in-depth understanding of phenomena in real-life settings.[12] Furthermore, case studies have the advantage of studying a phenomenon in real situations, enabling readers to understand ideas more clearly. [12] Shamva and Madziwa were conveniently selected due to accessibility and cost effectiveness. [12]

Research Participants

The study involved 55 rural women aged between 18 and 60 years, who were within the age group vulnerable to PV infection and UCN. Data were collected from 25 individual interviews and six FGDs comprising a total of 30 participants, as shown in Table 1.

Selection and Access to Research Participants

The Village Heads assisted the researchers to purposively sample the research participants through identifying households with women within the range of 18-60 years who are prone to suffer from PV. The Village Heads have bio-data files for households which were used to identify eligible participants for the research. The role of Village Heads was limited to providing these lists;researchers conducted data collection independently to avoid undue influence and to maintain participants' privacy.

The Provincial Head in the Ministry of Health and Child Welfare was requested for permission by the researchers to access information from health workers in Shamva and Madziwa. Further, the Officer in-Charge of the Ministry of Rural Development, Promotion and Preservation of National Culture and Heritage in charge of rural communities, provided permission to the researchers to gather data.

Development of the Interview and Focus Guide

Data collection was guided by interview and FGD guides, developed based on the study objectives, existing literature on vaccine hesitancy, and the Three Cs model[6]. The interview guide used open-ended questions to explore participants' experiences, beliefs, and perceptions regarding PV vaccination[10]. Guides in English and Shona enhanced participation and kept FGDs focused[11]. Two qualitative health research experts reviewed the guide for clarity, relevance, and cultural appropriateness, with minor modifications made to improve question wording and sequencing before data commenced.

Data Collection Procedures

Twenty-five individual interviews and six FGDs of 4–6 participants were conducted from 02–30 November 2024. Each FGD lasted 30–35 minutes, and interviews 25–30 minutes. Open-ended questions allowed participants to share views on PV vaccine hesitancy, while FGDs enabled discussion of collective experiences. With consent, sessions were audio-video recorded on smartphones

Table 1. Research Participants: N = 55women

Research Instrument	Research Participants	Total
Interviews	25	25
FGD 1	5	5
FGD 2	4	4
FGD 3	6	6
FGD 4	4	4
FGD 5	6	6
FGD 6	5	5
Total	55	55

and securely stored on computers and external drives. Data collection continued until saturation, when no new themes emerged.

Data Analysis

Data were analysed and discussed based on emerging themes[7,14].

First, all interviews and FGDs were transcribed and repeatedly reviewed to understand participants' perspectives[7].

Second, emerging themes were identified by highlighting meaningful phrases related to PV vaccination hesitancy[10].

Third, similar codes were grouped into three main themes:

1. ITMKS and PV vaccination;
2. IRMKS and PV vaccination; and
3. Factors contributing to rural women's PV vaccination hesitancy.
4. Fourth, themes were reviewed to ensure they accurately reflected participants' experiences, and data from interviews and FGDs were compared for consistency.[7].
5. Fifth, findings were presented using thick descriptions and direct quotations to enrich results[7].
6. Individual interview data were triangulated with FGD data, and finally, researchers summarized recorded information with participants to confirm that captured data accurately represented their views[7,11].

Ethical Considerations

The researchers obtained ethical clearance (Approval no: 2024/08) from Great Zimbabwe University School Ethics Review Committee. The research participants signed consent forms after explaining to them the objectives of the study and issues of confidentiality. The informed consent forms were written in English and *Shona* and participants could choose their preferred language to ensure understanding of the consent forms[13]. Further to written consent, oral permission was sought especially for those who may not be in a position to understand written documentation. Confidentiality was maintained by assigning alpha-numeric codes, (eg R1, R2, and R3) instead of using participants real names. Data were securely stored and accessible only to the research team.

Results

The findings are presented according to emerging themes and sub-themes that influence HPV vaccination. Theme 1 focuses on ITMKS and PV vaccination; Theme 2: IRMKS and PV vaccination and Theme 3: Factors contributing to rural women hesitancy in embracing biomedical PV vaccination.

Theme 1: Indigenous Traditional Medical Knowledge Systems (ITMKS) and PV Vaccination

This theme describes how traditional healing practices shapes perceptions of PV and vaccination uptake. Three sub-themes emerged:

Herbal Remedies

The research established that rural women used herbs to treat PV that causes cancer:

I use baobab leaves, barks of mutsomo and plant roots of mutsamvi tree (R5).

R8 explained:

Elephant dung is inserted in the genital parts by women to treat cervical cancer.

The excerpts show that herbal remedies may hinder PV vaccine acceptance among rural women. Herbs such as *mutsomo* (Sclerocaryacaffra), *mutsamvi* (Ficusingens), and *gungwe* (Sorrel) are used to treat UCN. The herbs are easily accessible and available in the community

Spiritual Cleansing

The study found out that UCN was treated through spiritual cleansing:

Traditional healers (*Sangomas*) *prepare some herbs which the patient either drinks or places it in bathing water in order to cast away the evil spirits* (R6; R14).

The traditional healers prepare herbs for drinking and bathing to cast away evil spirits. This reflects the integration of physical and spiritual healing within ITMKS. This shows a strong belief among rural population that UCN is a spiritual condition that needs spiritual cleansing.

Natural Diet

The participants believed that natural food products help in the treatment of UCN:

R9 narrated:

I take raw honey and ginger (R9).

Consumption of raw ginger and honey is viewed as preventive. These food products are regarded as safe and locally available than biomedical interventions.There is trust (confidence) in local remedies and convinience in acquiring the natural food products hence reducing the uptake of vaccines.

Theme 2: Indigenous Religious Medical Knowledge Systems (IRMKS) on PV, Cervical Cancer (Uterine Cervical Neoplasms) [UCN] and its Vaccination

The theme describes how congregants from indigenous churches in Zimbabwe practice faith, ritual, symbolic and sacred healing and how this has an effect on uptake of vaccines. Four sub-themes emerged.

Spiritual or Faith Based Healing

Use of Prayer and Fasting in Treating Cervical Cancer

Participants thought that UCN was due to avenging spirits and punishment from God :

Ailments are caused by avenging spirits and punishment from God that requires prayers and fasting to cast them away (R10; R7)

The respondents believed that UCN were a punishment from God and evil spirits This leads to complacency and reduced perceived risk of UCN. The church elders have the responsibility of praying and fasting for those who are ill. It is observed that one's belief in faith healing was a

determinant to acceptance/refusal of PV vaccination.

Ritual Healing Substances

Use of Holy Water and Stones to Treat UCN

Congregants of the indigenous churches believed in the use of holy water to treat UCN as collaborated by R2 and R4:

Faith healers in Pentecostal church treat cervical cancer by using stone pebbles and holy water kept in clay pots (mbiya) (R2; R4).

Congregants of indigenous churches use holy water, pebble stones, and clay-pot steaming to treat UCN, reflecting African traditions where elders use snuff in clay pots to communicate with ancestors for protection and healing.

Mixture of Lemon Juice, Fresh Milk, Cooking Oil and Salt in the Treatment of Cervical Cancer

Members of one of the African Apostolic Church believed that UCN could be treated by eating appropriate diet.

We use ordinary cooking oil, fresh milk and consume lemon and salty foods to treat cervical cancer.(R15)

The congregants believed that UCN could be treated by eating appropriate diet and applying cooking oil to the genitals.Lemon juice is believed to be a disinfectant in the treatment of wounds while milk in some cultures is typically applied to wounds to speed up the healing process while salt has a preservative effect on wounds.

Symbolic Healing Practices

Fastening Red String Around the Waist in Treating Cervical Cancer

The study unpacked that some indigenous churches treated UCN through spiritual and sybolic healing.

A cervical cancer patient fasten a red cloth around the waist as a way to fending off evil spirits. (R5; R14).

In African tradition red artifacts are used for purification and cleansing purposes for people suffering from various ailments.

Sacred Healing Practices

Healing Cervical Cancer at Isolated Healing Shrines 'Kumativimana'

Healing shrines *(kumativimana)* are used by faith healers to treat UCN patients.

Severely ill patients must leave their homestead and go to stay with one of the prophets at an isolated place (kumativimana) until the patient recuperates (R4).

It is believed witches send evil spirits to cause illness, so isolating cancer patients from home and community confuses these spirits. Similarly, in Mark 1:40-45, Jesus healed the leper in the wilderness, showing natural environments support physical and emotional healing.

Theme 3: Factors Contributing to Rural Women Hesitancy in Embracing Biomedical PV Vaccination

This theme captures broader social, cultural, and structural barriers influencing vaccine hesitancy. Four subthemes emerged:

Misinformation and Stigmatisation

The study found that fear and misconception about PV vaccination are a hindrance to UCN vaccination as evidenced by the following excerpts:

Anyone who suffers from cervical cancer is believed to be of loose moral. (R1).

Cervical cancer is associated with those above 50 year who have stopped menstruating. (R7).

Women avoid UCN screening due to stigma and fear of being labeled promiscuous, leading to social exclusion and low PV vaccine uptake. Misinformation causes fear and mistrust. Some participants believe UCN affects only older women, assuming menstruation cleanses cancerous infections, reducing perceived need for vaccination.

Cultural and Gender Issues on PV Vaccination

Culture contribute to rural women hesitancy against UCN screening and vaccination. R3 has this to say:

I am not comfortable that a male nurse touches and observes my genital parts during cancer screening .

My husband would suspect me of infidelity should I be found suffering from HP (R2).

Participants (R2, R3) considered discussing sexual issues and exposing genitalia during screening culturally unacceptable. Mistrust of male nurses by husbands worsens the situation. Participants fear sexual abuse and avoid screening. Community norms expect fidelity in marriage, and infidelity is condemned and may lead to divorce.

Education and Awareness

Accurate information and awareness on UCN is vital in empowering individuals in making decisions on PV vaccination. Participant R18 claimed:

For most of us, the feeling was that cervical cancer was another form of HIV.

R4 proclaimed:

I wouldn't go for cervical cancer screening because I was told that my womb would be removed whichis is abomination in our culture.

Education is vital for informed PV vaccination decisions, helping dispel myths and reduce stigma. Participant R18 equated UCN to HIV/AIDS, while R4 feared screening would lead to womb removal. Others believed hysterectomy causes shame and loss of dignity, negatively affecting perceptions of UCN treatment.

Distance to a Health Facility

Distance to health facilities has an impact on people's decision to get vaccinated:

I am a single mother with three young kids which I cannot leave behind and go for cancer screening which is twenty kilometers away (R20).

Interviews showed long distances to health facilities deter UCN screening and HPV vaccination. Some clinics are over 20 km from homes, making access difficult, especially for women with young children. Poor transport and lack of bus fare in rural areas further limit women's ability to visit screening centres.

Discussion

Theme 1: Indigenous Medical Knowledge Systems and PV Vaccination

The study found that rural women use various herbs and animal wastes to treat UCN, often through ingesting mixtures of plant products. This reliance reflects a deep-rooted belief that natural remedies are safer and culturally appropriate than biomedical interventions. However, many traditional remedies lack scientific evidence on safety and efficacy, as they have not undergone clinical testing for UCN treatment.[15] Within the Three Cs model, this reflects confidence and convenience, as women trust indigenous remedies and find them readily accessible compared to biomedical services.[6]

Participants also preferred locally available medicines as part of their daily diet for prevention. The availability and affordability of traditional medicines increase convenience, reducing uptake of biomedical options. Cultural beliefs further shape perceptions, with UCN often attributed to spiritual.[16,17] A study on COVID-19 vaccination in Zimbabwe showed that fear of side effects also hinders vaccine uptake.[19] Overall, belief in indigenous medicine and natural foods reduces the perceived need for PV vaccination and treatment.

Theme 2: Indigenous Religious Knowledge Systems on PV, UCN and its Vaccination

Participants believed illnesses had supernatural causes, leading church elders and prophets to prescribe spiritual healing practices. Seeking spiritual guidance in high places is common among the Gikuyu in Kenya[20] and in Zimbabwe[13]. Religious beliefs influence vaccine confidence, as communities prioritizing faith-based healing often view vaccines with suspicion or as interfering with divine protection[21]. Participants also believed that diseases like UCN are punishments from God[22], treatable only through confession and repentance. UCN was sometimes attributed to witchcraft or angry ancestral spirits, prompting spiritual cleansing rituals. Similar beliefs are documented in African traditional health systems, where illness is interpreted through spiritual causation frameworks[23]. Such perceptions contribute to complacency within the Three Cs model, as women may see UCN as a spiritual[24] rather than biomedical condition.

The study further identified ritual healing substances used to treat UCN (R2, R3, R5, R14), reflecting a blend of biblical symbolism with African traditional healing[22]. In Eastern Zimbabwe, holy water is used for various ailments[22], while in Tanzania, traditional remedies such as wild fruits and cashew are believed to enhance immunity[25]. Within the Three Cs model, these practices illustrate both confidence and convenience, as religious healing is community-based and reinforced by collective beliefs.

Participants from indigenous churches also used symbolic practices, such as keeping stone pebbles in clay pots with water [mbiya] (R3; R4) and tying red cloth around the waist to treat ailments. Bathing with clay pot water is believed to cast away evil spirits. Similarly, African family elders use snuff in clay pots during ancestral communication to seek protection against illness[26,27]. Such symbolic practices contribute to complacency in the Three Cs framework.

Sacred healing practices were observed among faith healers treating UCN patients (R8). Isolating patients from home and community is believed to confuse evil spirits, a practice reminiscent of Old Testament leprosy isolation. This strategy is common among Pentecostal churches in Zimbabwe[28,29,30] and represents convenience within the Three Cs model, as healing shrines are locally accessible. However, isolating patients may limit access to formal medical treatment.

Overall, members of indigenous churches generally believe PV and similar illnesses have supernatural causes. Healing often combines traditional and faith-based practices, which influences vaccine confidence, reinforces reliance on spiritual interventions, and can contribute to complacency within the Three Cs model.

Theme 3: Factors Contributing to Rural Women Hesitancy in Embracing Biomedical PV Vaccination

The study unpacked that fear and misconception about PV screening and vaccination are a hindrance to UCN by participants. Fear over the results of UCN screening prevent participants from HPV screening and vaccination (R2). In Ethiopia, women resisted UCN screening for fear of unknown outcome.[2] Rural women had misconception that UCN only affect population above 50 years who are no longer menstruating. Myths, lack of trust and misconceptions around a vaccine can discourage people from getting vaccinated.[19] According to Three Cs model misconception may lead to complacency and low perceived danger of UCN.

The researchers observed that participants hesitancy to PV vaccination is partly due to stigmatization from the community. PV is associated with promiscuity in which women who suffered from UCN are regarded as prostitutes. [22] A study in Dabat District in Ethiopia, has revealed that husband disapproval was regarded as the main barrier to cancer screening[29]. The findings are in line with Three Cs model of vaccine hesitancy in which confidence are crucial in individuals accepting vaccination.[6]

It was evident from the study that rural women wrongly believed that UCN screening would result in the removal of the womb. Information source credibility are very critical in health communication[18,24] since this would influence the behaviour of rural women. Lack of accurate information about Chinese vaccines reduced the uptake of the COVID vaccines by some communities. Within the Three Cs model, inadequate education erodes confidence in vaccines and increases complacency by reducing perceived risk.

It was evident from the interviews that barriers like long distances to health facilities were a deterrent to cervical screening and vaccination for rural women. The

findings are consistent with the three Cs model of vaccine hesitancy which shows that convenience influences uptake of vaccines by a community.[10]

Conclusion

The main aim of the study was to explore the influence of ITMKS and IRMKS on PV vaccination hesitancy among rural women in Zimbabwe. Findings show that women rely on herbal remedies, natural foods, ritual cleansing, and faith-based healing to prevent or treat UCN. These methods involve ingestion for internal cleansing or external practices to remove perceived spiritual causes of illness. Traditional healers may also consult the spiritual world.

Among indigenous church congregants, PV is often viewed as having supernatural origins, requiring faith and sacred healing. Vaccine hesitancy is shaped by multiple factors, including socio-cultural beliefs, limited UCN education, and physical and economic barriers. According to the Three Cs model, these factors influence confidence, complacency, and convenience, ultimately affecting PV vaccination uptake among rural population.

Recommendations

- Healthcare systems should integrate ITMKS and IRMKS into programmes to improve vaccination uptake.
- PV initiatives require health professionals and policymakers to understand prevailing traditional and RMKS.
- Health systems should incorporate traditional and faith-based healers through partnerships in service delivery and development of PV campaign materials in local languages.
- Joint workshops for health workers, traditional and faith healers on PV vaccination are also essential.
- The study noted that long distances to health facilities limit access. It therefore recommends government promotion of mobile clinics in rural areas.
- Effective implementation should include: scheduled visits, provision of comprehensive services such as cervical screening, and stakeholder awareness campaigns.
- In Zimbabwe, community radio can support outreach. Campaign teams should include female health workers to address cultural concerns.

Limitations and Future Research

The study was limited to one of Zimbabwe's ten provinces, restricting generalisability. Broader research is needed. Further studies should examine the biochemical and nutritional properties of herbs and animal products identified by participants for UCN treatment to determine their efficacy and potential for integration into healthcare systems.

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Authors' Contribution

Conceptualization: Paul Mukucha.
Data Curation: Joshua Risiro, Divaris Cosmas Jaravaza.
Formal Analysis: Joshua Risiro, Divaris Cosmas Jaravaza.
Investigation: Paul Mukucha, Joshua Risiro, Divaris Cosmas Jaravaza.
Methodology: Joshua Risiro, Divaris Cosmas Jaravaza.
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Competing Interests

The authors declare they have no conflict of interests.

Data Availability Statement

The data set supporting the findings has been stored in folders on computers and external drive and can be provided by the corresponding author upon request.

Ethical Approval

The study obtained ethical clearance (Approval no:2024/08) from Great Zimbabwe University School Ethics Review.

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