RESEARCH ARTICLE

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Behavioural and Social Drivers (BeSD) of HPV vaccination in Zimbabwe: A Rapid Scoping Review of Literature

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Abstract

Background: Regardless of the World Health Organization's recommendation for human papillomavirus (HPV) vaccination, Zimbabwe still faces challenges in achieving optimal vaccination coverage among female adolescents and young adults. **Objectives:** This rapid scoping review of literature aims to identify the behavioural and social drivers (BeSD) influencing HPV vaccination uptake in Zimbabwe over the past ten-year period. **Methods:** A scoping review of published and grey literature from 2014 to 2024 was conducted. Data analysis was guided by theoretical frameworks. **Eligibility criteria:** English language published and grey literature relevant to public health, vaccination, and social and behavioural sciences from Zimbabwe from 2014 to 2024. **Sources of evidence:** Ministry of Health & Child Care archives, African Journals Online, PubMed, Google Scholar, Scopus, and Web of Science. **Charting methods:** Tables with author information, year of publication, and relevant findings were used to chart the results. **Results:** Twenty-eight articles and grey literature sources were included. Key themes encompassed knowledge and attitudes, costs, vaccine uptake, healthcare provider perspectives, and feasibility of delivery methods. High knowledge levels regarding HPV and vaccination coexisted with misinformation and fears, impacting uptake. Socioeconomic factors and religious beliefs influenced HPV vaccination decisions. School-based vaccination was deemed feasible but faced challenges such as misinformation. Communication strategies, including a "Communication for Development" (C4D) approach, were crucial for addressing barriers and fostering community engagement. **Discussion:** The findings align with numerous theoretical frameworks including the Health Belief Model, Theory of Planned Behaviour, and Social Ecological Model. Addressing barriers at multiple levels, promoting cultural competence, and integrating HPV vaccination into existing healthcare activities are recommended. **Conclusion:** To enhance HPV vaccination uptake in Zimbabwe, tailored health literacy campaigns, leveraging existing healthcare infrastructure, increased political commitment, and integration into national immunization programmes are crucial. Implementation should draw on existing policies and guidelines to ensure sustainability and equity in vaccination efforts.

Keywords: Behavioural and Social Drivers (BeSD)- HPV vaccination- scoping review- Zimbabwe

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Introduction

Worldwide, only 15% of females in the targeted age group for the human papillomavirus (HPV) vaccination are fully protected [1]. Following major recommendations by the World Health Organization (WHO) to offer the HPV vaccine to girls aged 9–14 years with the aim of safeguarding women against the risk of developing cervical cancer associated with the HPV, Zimbabwe introduced a vaccination programme in 2014. This initiative aimed to protect girls and women from the morbidity and mortality associated with cervical cancer. The programme commenced with a demonstration project in Marondera and Beitbridge districts in 2014, specifically targeting girls aged between 10 and 14 years. During this demonstration project, girls received a minimum of two doses of the HPV vaccine administered at intervals ranging from six to twelve months. The resultant insights from this demonstration project informed a nationwide rollout of HPV vaccination which started in May 2018. The programme was mostly school-based although additional efforts were made to identify and mobilize girls out of school through the Village Health Workers (VHWs) in the community. From 2018 to 2019 and then in 2021, HPV vaccine coverage rates were reportedly high as the programme was delivered mainly through a school-based approach. However, the HPV vaccination programme was disrupted during the COVID-19 period

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and vaccination coverage rates significantly declined in 2022 and 2023 when the approach shifted to mainly health facility-based routine immunization. It is therefore against this background that the country is embarking on the revitalization of the HPV vaccination programme. To achieve this, it is imperative to understand and interrogate the behavioural and social drivers (BeSD) of HPV vaccination uptake in in country.

In settings where access to essential healthcare and preventive measures are limited such as most of sub-Saharan Africa, and Zimbabwe in particular, there is increasing need to maximize HPV vaccine coverage so as to mitigate against the negative ramifications of cervical cancer thereby reducing cancer mortality among women. Further, in some of these settings, vaccine hesitancy is common and poses as a significant barrier to HPV vaccination uptake [2]. Thus understanding factors such as concerns regarding vaccine safety [3], lack of awareness, or cultural beliefs, remains paramount for crafting targeted public health interventions. Since both behavioural and social factors are paramount in shaping one's decisions regarding HPV vaccination, there is need to understand these specific drivers to enable public health practitioners and policymakers to tailor vaccination communication strategies to effectively reach target populations. Such strategies may include innovative community engagement initiatives and culturally sensitive communication campaigns. The existing healthcare access and utilization disparities in most of African countries [4] exacerbate the incidence and mortality due to cervical cancer. There is therefore need to reduce these disparities through identifying and addressing the behavioural and social determinants of HPV vaccination uptake especially in underserved and marginalized populations such as those in rural areas and with limited healthcare access thereby optimizing resource allocation. This review therefore provides a systematic approach to understanding the behavioural and social drivers of HPV vaccination among adolescent girls and young women in low-resourced settings. The key question was what are the key factors influencing HPV vaccine uptake among adolescents in Zimbabwe, and what strategies have been effective in advocacy and social mobilization for HPV vaccination in similar contexts?

Theoretical Frameworks Exploring behavioural and social drivers influencing HPV vaccine uptake among adolescents in Zimbabwe, and understanding the effective strategies that can be employed to enhance vaccination requires use of a combination of robust theoretical frameworks. This is mostly because vaccination behaviour is complex which warrants a combination of theories. To achieve this, several elements of health behaviour change theories were used and these include the Health Belief Model, Social Cognitive Theory, Theory of Planned Behaviour, Diffusion of Innovations Theory, and Social Ecological Models. Thus, we adopted a Cultural Competence and Sensitivity framework as it puts emphasis on the importance of understanding people's cultural beliefs, their values, and practices in healthcare decision-making. There is therefore need to integrate a population's cultural dimensions into theoretical models as such an approach acknowledges and appreciates the unique influence of cultural factors on HPV vaccination intention and behaviour. Furthermore, this realisation helps in identifying culturally sensitive approaches to vaccination promotion. Adopting this multi- and interdisciplinary approach therefore allowed for the identification of multifaceted determinants and the development of targeted interventions to improve HPV vaccination uptake in Zimbabwe.

Materials and Methods

A review of literature was done to answer the objectives of this study. In the initial phase, consultations were conducted with key stakeholders from the Zimbabwean Ministry of Health & Child Care, UNICEF, WHO, GAVI, and other pertinent stakeholders in Zimbabwe to identify and retrieve key documents such as vaccination policy guidelines, position papers, strategic plan documents, reports, deployment plans, and other relevant literature. These documents were extracted using a data extraction tool and reviewed to gather context-specific information on HPV vaccination.

Eligibility Criteria

English language published and grey literature relevant to public health, vaccination, and social and behavioural sciences from Zimbabwe from January 2014 to March 2024. This allowed for provision of contemporary insights into the country's unique challenges related to HPV vaccination, government and other stakeholders' initiatives, and vaccination trends, thereby ensuring a comprehensive understanding of the phenomenon under study through addressing existing knowledge gaps.

Data sources

Academic databases such as African Journals Online, PubMed, Google Scholar, Scopus, and Web of Science were used. Additionally, Ministry of Health & Child Care (Zimbabwe) archives were also searched in order to identify relevant grey literature.

Search terms

Search terms were developed and Boolean operators (AND, OR, NOT) used to combine search terms effectively. The following search terms were used: "adolescents"; "advocacy"; "cervical cancer"; "behavio* drivers"; "squamous cell carcinoma"; "adenocarcinoma"; "human papillomavirus vaccination"; "HPV vaccin*"; "cervical cancer prevention"; "low-resource settings" "developing countries"; "vaccination program*"; "school-based vaccination"; "routine immunization"; "adolescent vaccination"; "healthcare access"; "health disparities", "attitudes"; "behavio*"; "social mobilization"; "social drivers"; "behavioural and social drivers"; "health behavio*"; "health promotion"; "behavio* determinants"; "social determinants"; "health equity"; "community engagement"; "intervention effectiveness"; "Zimbabwe".

Screening the literature

Two independent reviewers (RM & JJ) screened

and reviewed the titles and abstracts of the retrieved documents and articles to determine their relevance to behavioural and social drivers of HPV vaccination and those studies not meeting the inclusion criteria were discarded. Following this process, the two independent reviewers (RM & JJ) then retrieved full-text articles for further review. Due to the paucity of literature within the local context, no assessment of the quality of the documents and articles was done.

Data charting

Data extraction forms were used to chart data from included sources. The charting of data was done by only a single reviewer (RM) due to resource limitations. However regular team reviews were conducted to ensure data verification.

Analysis and reporting

The extracted data were analysed to identify common themes, patterns, and possible gaps in the literature. The analytic plan was guided by the main objectives and the main tenets of the theoretical frameworks presented earlier above. Particular attention was paid to behavioural and social factors influencing HPV vaccine uptake among adolescent girls and young women in Zimbabwe and effective strategies for advocacy and social mobilization.

Results

A total of twenty-eight (28) published peer reviewed articles covering a ten year period (from January 2014 to March 2024) were identified and retrieved. Most of the studies focused on general cervical cancer screening and many of the studies did not specifically focus in HPV vaccination. In some cases, HPV vaccination was mentioned as an adjunct to cervical cancer screening and prevention programmes. In addition, the review included grey literature in the form of MoHCC reports on HPV vaccination coverage, HPV vaccination campaign reports from Harare City Health Department, the HPV coverage validation survey, the Zimbabwe Independent Review Report of 2020 and various other PowerPoint presentations on HPV vaccination in Zimbabwe. Studies predominantly focused on girls and young women and boys were not generally included in the HPV vaccination programmes.

Thematic areas

Reviewed articles covered a number of BeSD-related themes including: (i) knowledge and attitudes towards HPV vaccination [5, 6], (ii) costs of HPV vaccination [7, 8], (iii) HPV vaccine uptake [5, 6, 9], (iii) healthcare provider perspectives of HPV vaccination [9], and (iv) opportunities and challenges towards vaccination [5, 9–14].

Key behavioural and social drivers (BeSD) influencing HPV vaccination uptake

Results indicated that across multiple sites in Zimbabwe, most respondents were very knowledgeable about HPV infection and the HPV vaccination with 90% showing good understanding [5]. This was also supported by a study across three districts where 70% of the respondents had good knowledge and mentioned that HPV vaccination helps to prevent cancer, with 50% specifically mentioning cervical cancer [6].

Perception of risks and severity of cervical cancer were found to be important in Zimbabwean settings with one study indicating that fully vaccinated adolescent girls were likely to have parents or caregivers who cited fear of cancer as motivators for their child to be vaccinated (43% in Mutare and 13% in Zvimba districts) [6]. Similarly, results showed that awareness of cervical cancer prevention and the importance of HPV vaccination can contribute to uptake rates in Zimbabwe. This is evidenced by findings from studies which reported that one common reason for late HPV vaccination was being unaware of such a programme [6, 15].

Another key factor that affected HPV vaccine uptake in the Zimbabwean context related to socioeconomic factors. Barriers such as the cost and accessibility of vaccines have been cited [16]. Other studies have shown that conducting HPV vaccination programmes in schools appears to be more cost-effective [7]. In light of such findings, Hilde and colleagues recommend an urgent need to assess the costs and effectiveness of employing various strategies to reach out-of-school girls so as to ensure equitable access to HPV vaccination [8].

Seemingly contradictory findings have been reported regarding religious beliefs and their influence on HPV vaccination in Zimbabwe. For instance, in one study no parent/caregiver reported not vaccinating their child because of religious reasons [6], while in another there was a significant association between religion and acceptance of HPV vaccination [15]. Encouragingly, one study reported that HPV vaccine acceptability was high at 90% although the same study indicated that uptake was low at only 8% [17].

Feasibility of HPV vaccine delivery in Zimbabwe

One study across 30 districts in Zimbabwe to assess the feasibility of an HPV vaccination programme found that implementing the programme through a school-based campaign was generally feasible and acceptable to health, education, and community stakeholders [5]. Although education and health staff were found to be knowledgeable about the programme, concerns centred around misunderstandings over the HPV vaccine with 42% of respondents reporting having heard of rumours linking the vaccine to infertility [5]. These findings have likewise been reported in other settings outside Zimbabwe [2, 18], thus underscoring the importance of ongoing social mobilization efforts, enhanced training, and resource mobilization for the sustainability of the HPV vaccine programme in these settings.

Grey literature results

Results from the various grey literature documents reviewed indicated a high level of the government's commitment to the HPV vaccination programme among girls in order to prevent cervical cancer. The government through the Ministry of Health & Child Care and

other support partners launched the pilot HPV vaccine programme in Beitbridge and Marondera Districts and stemming from the success of this pilot introduced a full roll-out of the programme in 2018 indicating strong political commitment with the First Lady of Zimbabwe taking up the role as the Chief Matron of the national HPV campaign. Furthermore, the National Health Strategy 2021-2025 under Strategic Direction 3.4.3 aims to reduce preventable disease burden due to non-communicable diseases through multi-sectoral collaboration while taking guidance from global commitments and the prevention of cervical cancer [19].

HPV vaccination coverage

According to the Human Papillomavirus and Related Diseases Report, by 2021, the HPV vaccination coverage for the targeted population in Zimbabwe was 67% for the first dose and 40% for the last dose [20]. The trends however, appeared to be higher in urban areas such as Harare. For instance, the 2019 Harare City Health Department HPV Second Cohort and Second Dose Campaign Report aimed at detailing demand creation activities for uptake of HPV vaccine among the community and the monitoring and management of adverse events following HPV vaccination stated the total coverage for dose one was 91.8%, with dose two coverage being 77.7%. The report furthermore stated that no adverse events following immunization were reported and that the HPV vaccine was well accepted in the community with schools being reached despite minimal resources available. Challenges with HPV vaccination included logistical issues such as transport and fuel constraints, lack of budgeting for social mobilization and district supervisors, unclear tally sheets leading to poor data quality, difficulty in tracing students for second doses, communication delays, parental reluctance for second doses, limited teams to cover all schools in five days, and in some cases, uncooperative schools. It should be noted though that HPV vaccination programmes which were delivered in school-settings tended to have higher coverage than those delivered in health facilities [20] averaging nearly 20% more (Table 1).

Discussion

The central question in this scoping review was to understand key factors influencing HPV vaccine uptake among adolescents in Zimbabwe, and what strategies have been effective in advocacy and social mobilization for HPV vaccination so as to inform future interventions. The results indicated that reviewed studies predominantly focused on girls and young women and boys were not generally included in the HPV vaccination programmes despite

global evidence indicating that adolescent males have poor knowledge of HPV and HPV vaccination [21].

This scoping review showed that knowledge levels for HPV vaccination is good with several studies supporting this. Thus the results resonate what was reported across three districts in Zimbabwe where 70% of the respondents had good knowledge and mentioned that HPV vaccination helps to prevent cancer, with 50% specifically mentioning cervical cancer [6]. However, as in other settings in sub-Saharan Africa, the knowledge was intertwined with misinformation and various other fears [22]. It should be noted however, that not all studies in Zimbabwe reported high levels of knowledge with Crann and colleagues reporting in an earlier qualitative study that there were generally low levels of knowledge regarding HPV and HPV vaccines among healthcare providers [9]. Such discrepancies could be due to the timelines of the studies and also the differences in study design with the latter study having been conducted when there was more awareness of cervical cancer and HPV vaccinations in the country.

Improving awareness through health education campaigns targeting the community and healthcare providers is crucial. Recommendations from local healthcare providers and educationists play a significant role in vaccination decisions especially among adolescent girls which makes it imperative to ensure that their knowledge regarding HPV infection and HPV vaccination

Table 1. Local Documents on HPV Vaccination in Zimbabwe

No	Title	Type of Document	Date	Authors
1.	Zimbabwe National Health Strategy 2021-2025	Strategy Document	2021	Government of Zimbabwe
2.	National Development Strategy 1 (2021-2025)	Strategy Document	2021	Government of Zimbabwe
3.	Zimbabwe Human Papillomavirus and Related Diseases Report	Report	Mar, 2023	Bruni et al.
4.	Human papillomavirus (HPV) communication for development (C4D) strategy for Zimbabwe	Report	2018	UNICEF
5.	Coverage and Equity Assessment of Immunization Services in Zimbabwe	Report	Nov, 2019	
6.	HPV coverage validation survey – preliminary results	PowerPoint Presentation	Sept, 2019	MoHCC
7.	Post-Introduction Evaluation of HPV Vaccine Introduction in Zimbabwe	PowerPoint Presentation	June, 2019	MoHCC
8.	Zimbabwe Human Papilloma Virus Vaccination Campaign Report	Report	2019	MoHCC
9.	HPV Second Cohort and Second Dose Campaign Report	Report	2019	Harare City Health Department

is enhanced through regular trainings and information-giving.

In light of results which indicated that HPV vaccination efforts face cost and accessibility challenges, it is important to ensure that the HPV vaccines are affordable and accessible to all socioeconomic groups in the country to improve uptake. This calls for increased resource mobilization to sustain the programme. Additionally, integration of the HPV vaccination programme into the existing health and vaccination activities is pivotal in ensuring sustainability of the country's HPV vaccination programme.

Perceived Susceptibility and Severity (Health Belief Model) Results from the review indicated a high level of knowledge among Zimbabwean communities regarding HPV infection and the HPV vaccination, with 90% showing good understanding. Such results supports the Health Belief Model's proposition that perceptions of susceptibility to cervical cancer or HPV infection, as well as the severity of these health threats, influence vaccination decisions. Such similar results have been reported in Zambia [23], Kenya [24], and several other sub-Saharan African countries [2, 25, 26]. Results also indicated that fully vaccinated adolescent girls in the Zimbabwean context were likely to have parents or caregivers who cited fear of cancer as motivators for vaccination, highlighting the role of perceived severity in vaccination uptake which is in tandem with findings from other settings [22, 27]. Thus, there should be efforts from relevant authorities to maximise communication of the risks associated with HPV infection and the benefits of HPV vaccination.

Social Influences and Observational Learning (Social Cognitive Theory)

This review indicated the importance of BeSD on HPV vaccination in Zimbabwe. Social influencers and role models such as teachers and healthcare practitioners were well knowledgeable about the HPV vaccination programme, which potentially indicates presence of social support networks within communities thereby aligning well with the tenets of the Social Cognitive Theory and previous research findings from other African contexts [28–30]. However, despite these high levels of knowledge among these influential community cadres, there are concerns regarding misunderstandings over the HPV vaccine, such as rumours linking it to infertility. Such results therefore highlight the need for continued social mobilization efforts to address misinformation and enhance social modelling and observational learning. Attitudes, Social Norms, and Perceived Behavioural Control (Theory of Planned Behaviour) The Theory of Planned Behaviour suggests that attitudes toward vaccination, subjective norms, and perceived behavioural control influence vaccination intentions. In Zimbabwe, results indicating positive attitudes toward vaccination were observed, with 90% acceptability reported in one study. However, in this same setting uptake rates remained low at only 8% [31], indicating potential discrepancies between intention and behaviour. Similar results using the Theory of Planned Behaviour have been reported in other sub-Saharan Africa settings, specifically Ethiopia [32] and Ghana [33]. Such results in these different settings emphasize that there is need to identify and address barriers related to perceived behavioural control, such as cost and accessibility, to improve uptake rates.

Adoption and Diffusion of Innovations (Diffusion of Innovations Theory) In view of the Diffusion of Innovations Theory [34], the results of this study suggest that implementing HPV vaccination programmes in Zimbabwe through a school-based approach was generally feasible and acceptable to stakeholders. Nonetheless, concerns still exist over misunderstandings and rumours regarding vaccines in general and HPV vaccine specifically, highlighting the importance of ongoing diffusion efforts to address barriers to adoption of the vaccine. There is need to leverage early adopters within communities and addressing concerns through evidence-based communication strategies such as the C4D which facilitate the diffusion of HPV vaccination innovations. Multilevel Determinants (Social Ecological Model) The Social Ecological Model emphasizes the influence of multiple factors on BeSD of HPV vaccination. Such factors include individual, interpersonal, organizational, community, and policy-level factors. Results from this review of literature highlight the importance of addressing barriers to HPV vaccination at multiple levels. Thus, interventions such as improving awareness of HPV infection and cervical cancer through community education campaigns, addressing socioeconomic factors like cost and accessibility, and fostering trust through community engagement activities are pivotal in increasing HPV vaccination uptake in Zimbabwe. Integrating these interventions across multiple levels can optimize HPV vaccination uptake in Zimbabwe.

Cultural Competence and Sensitivity Framework This framework in crucial in addressing BeSD of HPV vaccination uptake in Zimbabwe since it underscores the importance of understanding prevailing cultural beliefs, norms and values, as well as practices in HPV vaccination decision-making. In Zimbabwe, cultural factors play a significant and pivotal role in shaping attitudes and behaviours related to HPV vaccination. For instance, while one study found no reports of parents/caregivers refusing vaccination due to religious reasons [6], another study identified a significant association between religion and HPV vaccine acceptance [15]. These findings highlight the diversity of cultural and religious beliefs within Zimbabwean communities and other similar settings which calls for the need for culturally sensitive approaches to HPV vaccination promotion [3, 25, 35]. It should also be noted that concerns regarding HPV vaccine safety and efficacy are oftentimes rooted in cultural beliefs and practices [2, 18, 22, 26]. Thus, addressing these concerns requires the development of tailored communication strategies that resonate with cultural norms and values.

Additionally, there are widespread disparities in healthcare access and utilization in most sub-Saharan countries. The situation is even more pronounced among vulnerable populations especially in rural and hard to reach areas and these disparities may be exacerbated by cultural factors such as traditional healing practices [22] and mistrust in Western medicine [3]. In view of

this, there is need to integrate cultural competence into vaccination programmes through collaborating with community leaders and traditional healers to build trust and foster acceptance of HPV vaccination. HPV vaccination programmes can furthermore incorporate cultural competence and sensitivity into advocacy and social mobilization efforts. This would enable stakeholders to engage with diverse communities, address cultural barriers to vaccination uptake, and promote health equity.

Communication strategies

In view of scaling up the HPV vaccine initiative in Zimbabwe, a "Communication for Development" or "C4D", which is a participatory approach encompassing the use of advocacy, communication, social mobilization, and social and behavioural change activities was initiated to empower individuals and communities to take up HPV vaccination during the period leading to the launch of the national HPV campaign. In these contexts, understanding the behavioural and social drivers to HPV vaccination is crucial as it helps in overcoming barriers to vaccination and to a large extent, ensures equitable access, especially among disadvantaged communities. Such communities may lack access to healthcare services due to various socioeconomic factors and there is need to pay particular attention to the target population's perceptions, knowledge, attitudes, and practices and other social drivers since these all significantly impact HPV vaccine uptake. Through the adoption of a C4D approach, which emphasizes participatory engagement and community involvement, stakeholders may be able to tailor relevant communication strategies to local contexts and effectively address misconceptions, fears, and cultural beliefs surrounding HPV vaccination.

Particular attention should be paid to communities where there may be mistrust in healthcare systems especially among religious groups where immunization rates are traditionally low as previous studies in Zimbabwe have reported associations with likelihood to vaccinate and one's religion [15]. In such instances fostering trust and building rapport through community engagement activities can potentially mitigate vaccine hesitancy. In the same vein, there is need to address concerns surrounding vaccine safety and efficacy. In the majority of cases, these concerns are usually fuelled by misinformation regarding vaccine efficacy and safety which requires a need for instituting targeted evidence-based information to affected communities.

Most disadvantaged communities may face additional barriers. For instance, there is a higher likelihood that vulnerable adolescent girls especially in rural areas may be missed out on vaccination efforts especially if they are out of school. In addition, these adolescent girls may have transportation to health facility challenges, and oftentimes have limited health literacy, all of which can hinder vaccine uptake. Thus, there is need to incorporate social mobilization and advocacy components within the C4D framework thereby allowing stakeholders to mobilize resources to address these structural barriers and promote HPV vaccination equity. Another approach could involve leveraging social and behavioural change activities in ways that cultivate supportive social norms and networks which enhance HPV vaccination efforts. This can be achieved through empowering disadvantaged individuals and communities to become advocates for HPV vaccination as such an approach can foster a culture of health-seeking behaviour.

Study limitations

There are several limitations to this rapid scoping review. First although the study attempted to include both published and grey literature, mostly archives from the Ministry of Health and Child Care were included in the grey literature and sources such as dissertation databases or local university libraries which may have hard copies on dissertations on this topic were not used. Additionally, no assessment of risk of bias was done in this review which may potentially limit the usability of the study results. Last, attempts were made to make the search as broad as possible which made it difficult to establish the boundaries of the review.

In conclusion, this comprehensive review of published and grey literature spanning ten years in Zimbabwe has shed light on critical aspects of the HPV vaccination programme. Reviewed studies and documents have explored various themes, including knowledge and attitudes towards vaccination, costs, uptake rates, healthcare provider perspectives, and challenges faced in vaccination efforts. Despite generally high levels of knowledge regarding HPV infection and vaccination in the country, persistent misinformation and fears have hindered uptake rates, emphasizing the need for enhanced health literacy campaigns targeting both communities and healthcare providers.

Furthermore, this review of literature underscores the importance of understanding perceptions of the risks and severity of cervical cancer, socioeconomic barriers, and the feasibility of delivery methods such as school-based campaigns, all of which significantly influence vaccination uptake. Efforts to mitigate misinformation, improve access, and integrate HPV vaccination into existing healthcare activities are essential for the sustainability and success of the HPV vaccination programme in Zimbabwe and similar settings.

Moreover, commonly cited factors leading to HPV vaccine hesitancy include concerns about side effects and infertility, coupled with a lack of understanding about the vaccine, HPV infection, and cervical cancer. Thus, addressing these obstacles, alongside issues such as limited awareness about vaccination options and distrust of healthcare providers, may be crucial for optimizing HPV vaccination coverage and achieving public health goals set in the Zimbabwe National Health Strategy 2021-2025.

There are several recommendations which can be emphasized to improve the effectiveness and equity of HPV vaccination initiatives in Zimbabwe. First there is need to prioritize investment in tailored health literacy and awareness campaigns. These campaigns could address the prevailing socioeconomic barriers. Secondly, leveraging existing healthcare infrastructure is key as most reasons for non-vaccination are linked programme

implementation [6]. Third, there is need to leverage on the political commitment and resource mobilization to ensure long-term sustainability of the HPV vaccination programme. Lastly, there is need to draw on existing policies and guidelines when integrating HPV vaccination into the national immunization programmes and the World Health Organization provides a very useful framework for achieving this in a publication entitled "Guide to Introducing HPV Vaccine Into National Immunization Programmes" [36].

Author Contribution Statement

All authors contributed to the conceptualisation, design, and writing up of this study. All authors approved the final manuscript

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Knowledge and Awareness

Although results indicated generally high levels of knowledge and awareness of HPV infection and vaccination in Zimbabwe, there is persistent misinformation and fears which hinder uptake rates, thus raising the need for improved health literacy campaigns in the community.

Perception of Risks and Severity

It is crucial to understand the perceptions of the risks and severity of cervical cancer and benefits of HPV vaccination in the community as these influence HPV vaccination uptake. There is need to scale up efforts to communicate the risks associated with HPV infection and the benefits of HPV vaccination in Zimbabwe.

Socioeconomic Barriers

Socioeconomic factors such as the cost and accessibility of HPV vaccines are potential barriers to vaccination uptake. It is therefore imperative to ensure that HPV vaccines are affordable and accessible to all vulnerable groups in the country including boys to improve uptake.

Delivery Methods

Results indicated that school-based vaccination programmes are feasible and tend to achieve have higher coverage rates than those delivered in health facilities, highlighting the importance of leveraging existing healthcare infrastructure.

Communication Strategies

Communication for Development (C4D) approaches, emphasizing participatory engagement and community involvement, are essential to overcome barriers to vaccination in Zimbabwe. There is need for tailored communication strategies addressing misinformation, prevailing misconceptions, community fears, and cultural beliefs surrounding HPV vaccination.

Trust and Mistrust

There is growing need for community engagement to build trust and rapport, especially among religious groups where immunization rates are traditionally low so as to mitigate vaccine hesitancy.

Sustainability and Political Commitment

The long-term sustainability of the HPV vaccination programme requires leveraging political commitment and resource mobilization.

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Ethics approval and consent to participate

Ethics approval was not required for this rapid scoping review.

Availability of data

Additional data can be obtained from the corresponding author on reasonable request.

Conflicts of interest

The authors declare no conflicts of interest.

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