



HHS Public Access

Author manuscript

Women Health. Author manuscript; available in PMC 2015 December 16.

Published in final edited form as:

Women Health. 2013 ; 53(6): 630–645. doi:10.1080/03630242.2013.809046.

Barriers and Facilitators to HPV Vaccination: Perspectives from Malawian Women

Katie A. Ports, PhD,

Department of Social and Behavioral Health, Virginia Commonwealth University/School of Medicine, Richmond, Virginia, USA

Diane M. Reddy, PhD, and

Department of Psychology, University of Wisconsin-Milwaukee, Milwaukee, Wisconsin, USA

Anjali Rameshbabu, PhD

Department of Psychology, University of Wisconsin-Milwaukee, Milwaukee, Wisconsin, USA

Abstract

The aim of this research was to elucidate potential barriers and facilitators to human papillomavirus (HPV) vaccination in Malawi, a sub-Saharan country. In Malawi, approximately 31 out of every 100,000 women develop cervical cancer annually, and 80% of those affected die from this malignancy. HPV vaccination may provide a feasible strategy for cervical cancer prevention in Malawi. However, important questions and concerns regarding cervical cancer and HPV vaccination acceptance among individuals and their communities must be considered prior to vaccine delivery. Qualitative interviews were conducted with 30 Malawian mothers aged 18–49 years from Chiradzulu District. Women’s knowledge and beliefs about HPV, cervical cancer, and vaccination, and their social-ecological contexts were explored in-depth. Thematic analyses revealed that despite women’s limited knowledge, cervical cancer was perceived to be a serious disease. Participants believed that as women, they were responsible for their children’s health. Women unanimously reported that they would vaccinate their children against HPV, especially if a health professional recommended it. Malawi’s health care infrastructure could present challenges to HPV vaccine programs; however, participants did not typically report this to be a barrier to vaccination. These data shed light on factors that may influence HPV vaccination acceptance and uptake in Malawi.

Address correspondence to Katie A. Ports, PhD, Virginia Commonwealth University/School of Medicine, Department of Social and Behavioral Health, One Capitol Square, 9th Floor, 830 E. Main St./P.O. Box 980149, Richmond, VA 23298-0149. kaports@vcu.edu.

Publisher's Disclaimer: Taylor & Francis makes every effort to ensure the accuracy of all the information (the “Content”) contained in the publications on our platform. However, Taylor & Francis, our agents, and our licensors make no representations or warranties whatsoever as to the accuracy, completeness, or suitability for any purpose of the Content. Any opinions and views expressed in this publication are the opinions and views of the authors, and are not the views of or endorsed by Taylor & Francis. The accuracy of the Content should not be relied upon and should be independently verified with primary sources of information. Taylor and Francis shall not be liable for any losses, actions, claims, proceedings, demands, costs, expenses, damages, and other liabilities whatsoever or howsoever caused arising directly or indirectly in connection with, in relation to or arising out of the use of the Content. This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly forbidden. Terms & Conditions of access and use can be found at <http://www.tandfonline.com/page/terms-and-conditions>

Keywords

human papillomavirus; HPV vaccination; cervical cancer; sub-Saharan Africa

Each year, 500,000 new cases of cervical cancer are diagnosed across the world, and approximately 80% of these cases occur in developing countries (World Health Organization [WHO], 2009). Malawi, a low-income, sub-Saharan country and the site for this research, has a population of 15 million people, and at least 31 out of every 100,000 women develop cervical cancer annually (Alliance for Cervical Cancer Prevention [ACCP], 2011). WHO (2006) indicated that a woman who develops cervical cancer in sub-Saharan Africa has at least a 79% chance of dying from this malignancy. Of additional importance, human immunodeficiency virus (HIV) and human papillomavirus (HPV), the virus that causes 99% of cervical cancer cases, have a synergistic relationship (Einstein & Phaeton, 2010; Horo et al., 2012). Approximately 12% of the adult population in Malawi is HIV positive (United Nations Development Program [UNDP], 2011); thus, a large proportion of Malawian women are estimated to be at an increased risk of developing cervical cancer from HPV infection.

Although cervical cancer is largely preventable, many Malawian women have limited access to resources for prevention, including routine screening and removal of precancerous/cancerous lesions (Fort et al., 2011; Taulo, 2008). Efforts are made by Malawi's Ministry of Health to provide basic health services to all Malawians through a socialized system of health care; however, Malawi ranks in the bottom 15 countries on the Human Development Index (UNDP, 2010), and medical supplies, trained medical personnel, and hospital beds remain scarce throughout the country (Palmer, 2006). The World Bank (2012) reported that merely 0.2 physicians and 2.8 nurses/midwives per 10,000 people were available in Malawi. While prevention strategies, such as cervical cancer screening, have contributed to significant reductions of cervical cancer cases in developed countries (WHO, 2009), Malawi's paucity of medical resources constrain the potential success of cervical cancer screening programs and underscore the need for alternative prevention strategies.

According to WHO (2006), the best long-term plan to reduce cervical cancer incidence and mortality in developing countries is inclusion of HPV vaccines in national immunization programs. The HPV vaccines, Gardasil and Cervarix, protect against two high-risk types of HPV (16 and 18) that cause 70% of cervical cancer cases and require fewer resources than routine screening and follow-up care. Widespread use of the vaccine has the potential to reduce cervical cancer deaths by 50% (PATH, 2009). The HPV vaccines are approved for boys and girls aged 9–26 years, and the U.S. Advisory Committee on Immunization Practices currently recommends that all boys and girls aged 11–12 years receive the vaccine before they become sexually active (Centers for Disease Control and Prevention [CDC], 2011). Although the vaccine is recommended for boys and girls, the vaccine has traditionally been marketed to females (Sandfort & Pleasant, 2009). It remains unknown whether Malawi's Ministry of Health and Population will include males in future HPV vaccination programs.

While the HPV vaccines are not currently available in Malawi, HPV vaccination is feasible in this context. The country has a fully operational immunization program, with a success rate exceeding 90% in children (United Nations Children's Fund, 2012). In addition, the Global Alliance for Vaccines and Immunization (GAVI) has included the HPV vaccine in their supported vaccination programs to assist low-income countries with the high cost of the HPV vaccine (Nguyen et al., 2011). Despite WHO's recommendation and GAVI's program, few sub-Saharan countries, including Malawi, have developed national HPV vaccination strategies. The first and only known national HPV vaccine program in sub-Saharan Africa is the Anti-Cervical Cancer Campaign in Rwanda (Kagire, 2011). This program supports the potential for HPV vaccination in other sub-Saharan countries; nevertheless, HPV vaccine acceptability cannot be assumed and must be investigated in the context in which it is to be delivered.

No information regarding HPV vaccination acceptance in Malawi was found; however, several studies investigating HPV vaccine acceptance in developing and sub-Saharan countries suggest that despite having limited cervical cancer knowledge and almost no knowledge of HPV, participants typically held positive attitudes toward HPV vaccination (Becker-Dreps et al., 2010; Chow et al., 2010; Harries et al., 2009; Kagire, 2011; Kwan et al., 2008; PATH, 2009), especially in areas where participation in cervical cancer screening was low (Francis et al., 2011). Reported barriers to vaccination in sub-Saharan countries have included cost, limited knowledge about HPV, low perceived risk of HPV infection, no immediate perceived need of vaccination, and fear of pain of injection (Becker-Dreps et al., 2010; Francis et al., 2011; Harries et al., 2009; PATH, 2009). Although these studies are informative, it remains unknown how well these findings generalize to the context of Malawi.

Because no known studies evaluating HPV vaccine acceptance in Malawi were found, formative research is needed to elucidate factors that may operate as barriers and facilitators to the population's use of the vaccine so that health promoters understand how to market and deliver the HPV vaccine effectively, when it becomes available. Beyond identifying individual level factors (e.g., knowledge and beliefs), researchers must also study the social and ecological health contexts in which individuals operate (Glanz, Rimer, & Viswanath, 2008; Oetzel, Ting-Toomey, & Rinderle, 2006). While individuals are responsible for their own health behaviors, social environments largely shape individual behavior, and therefore, it is necessary to investigate barriers and facilitators at multiple levels prior to program delivery. The present study sought to garner a comprehensive and culturally sensitive picture of HPV vaccine acceptance from a sample of Malawian mothers. The sociocultural challenges that mothers report are particularly informative for future HPV vaccination strategies because the vaccine is primarily intended for children, and mothers are largely responsible for their children's health, including vaccines (Jenkins et al., 2000). Findings from this study will provide a foundation for future cervical cancer prevention efforts in Malawi.

METHOD

Study Site

This study was conducted between August and November 2011 in Chiradzulu, Malawi. Chiradzulu is in the Southern Region of Malawi and, like many of Malawi's 28 districts, is predominantly agrarian. Chiradzulu District has a total population of 288,056 (137,194 males, 153,752 females; National Statistics Office (NSO) & ICF Macro, 2011), which is the second highest population density in Malawi. English is the official business language of Malawi; however, Chichewa is the most frequently spoken language.

Chiradzulu District Hospital is in the main city center and offers a variety of free health services, including cervical cancer screening using visual inspection with acetic acid. A network of rural health clinics located throughout the district provides additional basic services including immunizations. In addition, health surveillance assistants (HSAs) can deliver immunizations and health education to rural communities.

Participants

Following approval of the study protocol by the University of Wisconsin-Milwaukee's Institutional Review Board and Malawi's National Health Sciences Research Committee, participants were recruited. In qualitative research, participants are recruited until saturation of the data is reached (i.e., most or all the perceptions that might be important to the study are heard). Researchers typically agree that 30 participants are more than adequate to reach saturation (Strauss & Corbin, 1994). Purposive sampling was used to collect samples of mothers from four different villages in Chiradzulu District. These villages were strategically selected based on their distance from the District Hospital: (1) Selemani ($N = 14$), 0 kilometers from the District Hospital; (2) Chilanga ($N = 5$), approximately 5 kilometers from the District Hospital; (3) Ndunde ($N = 6$), approximately 10 kilometers from the District Hospital, and (4) Providence Industrial Mission ($N = 5$), approximately 15 kilometers from the District Hospital.

Any woman from the aforementioned villages could participate in the study as long as she met the following inclusion criteria: a mother of child-bearing age (18–49 years) and able to speak Chichewa or English fluently. Because the HPV vaccine is not available in Malawi, and as of yet the date for when it will become available or for whom it will be available is not known, mothers, regardless of the age and sex of their children, were included in the study. In addition, it is possible for the mothers in this study to have additional children who could benefit from the vaccine, so mother's perspectives remain informative, regardless of the age/sex of their current children.

Potential participants were approached at their residence by the primary researcher and interpreter and were asked if they would like to participate in a research study about women's health. Households were selected based on convenience via a door-to-door approach. All the women approached reported that they met inclusion criteria and consented to be in the study, a 100% eligibility and 100% participation rate. Informed consent was read to each of the women and their signature (thumb print) was collected before the interviews

began. Participants received a bag of food equivalent to \$5 US upon completion of the interviews.

Materials and Data Collection

In-depth, semi-structured interviews were used to explore complex ideas and behaviors. WHO's (2008) guidelines for knowledge, attitudes, and behavior surveys guided the framework for the interview schedule. The interview schedule was further developed using relevant literature and experts within the field (Becker-Dreps et al., 2010; Harries et al., 2009; PATH, 2009). The final interview guide consisted of approximately 25 questions. Domains of interest included beliefs about cervical cancer and HPV, behaviors and attitudes toward vaccination and health care services, acceptance of an HPV vaccine, and demographic information. Sample questions included, "Have you ever heard of cervical cancer before today?" "What have you heard?" and "When you are sick, where do you go for care?"

Information about cervical cancer and HPV was included in the interview guide so that women could answer subsequent questions about HPV vaccination. For example, if a woman indicated that she had not heard of HPV, the following was read to her: "HPV is not the same as HIV (the virus that causes AIDS). They are both viruses that can be passed on during sex, but they cause different symptoms and health problems. ..." At the end of the interview, women received information about cervical cancer prevention.

All study materials were tested with Malawian acquaintances and reviewed by Malawian counterparts to check for language and cultural appropriateness. Two Malawian female nurses fluent in English and Chichewa were selected as interpreters for the study and met with the primary researcher extensively to review the study aims and interview guide. Mock interviews were conducted and independently translated by the interpreters. Their independent translations were equivalent, thus their subsequent translations were believed to be reliable. Although the primary researcher is not fluent in Chichewa, she is conversationally proficient in the language and was able to follow the dialogue in Chichewa.

Semi-structured interviews typically lasted one hour and took place between the hours of 9 am and 2 pm in a private room/area so that only the participant, the researcher, and the interpreter were present. Interview questions were asked in English and translated into Chichewa. The interpreter would then translate the participant's responses into English so that a running dialogue was possible. After each interview, the interpreter and researcher discussed responses and noted important findings. All interviews were audio-recorded and transcribed. After transcribing the tapes, transcripts were verified with the audiotapes, and additional notes about themes were taken.

Data Analyses

Using grounded theory, recurring themes were identified within and between each interview according to grand thematic areas (Strauss & Corbin, 1994). Three members of the research team independently conducted coding of five transcripts. The independent lists of codes were reviewed to assess intercoder agreement. Discrepancies were clarified and resolved by comparing each coder's results with raw data until consensus was reached. A codebook was

then finalized and used for the analysis of the remaining interviews. To ensure reliability of the data, two individuals reviewed and coded each of the transcripts using the formal codebook. When overlaps or diversions in the data occurred, coding categories were adjusted. Discrepancies were discussed and resolved.

Validity was enhanced during the interview process and after the interviews by soliciting feedback from participants. Specifically, participants were asked if themes and selected quotes accurately reflected their beliefs. Clarifications and adjustments were made based on their feedback. Interviews were conducted at multiple sites to provide a range of perspectives, audit trails were maintained throughout data collection and analysis to document all the research steps, and findings were compared to existing literature. In addition, the interpreters and Malawian colleagues provided feedback on data collection, analysis, and write-up.

RESULTS

Saturation was reached after 30 mothers aged 18–46 years (*Mean* = 32 years) were interviewed. Participants' education level ranged from 0 years to secondary school completion (*Mean* = 6 years) (Table 1). All the women spoke Chichewa. Twenty-six women were married, three were divorced, and one was widowed. Five of the women were in polygamous unions. Women had been married, on average, for 12 years and had an average of 4 living children (Range: 0–8), of which 54% were female (*Mean age* = 11 years), and 46% were male (*Mean age* = 12 years). The majority of women (*N* = 20) had at least one daughter who was less than 12 years old and who would thus be considered a prime candidate for HPV vaccination. The mothers were representative of other women in Chiradzulu District (NSO & ICF Macro, 2011). From analysis of the transcripts, important themes emerged regarding barriers or facilitators to HPV vaccination (Table 2). No particular differences were observed between responses of women from different sites unless specifically noted.

Knowledge: “I’ve heard of it, but I don’t know what it is.”

All the women indicated that they had heard of cervical cancer; however, women's knowledge about HPV and cervical cancer was limited. As one woman commented, “I have just heard the word, I do not know anything else.” The general perception among the women was that cervical cancer was sexually-related and could be prevented by limiting sexual activity. As one woman explained, “If you are not careful with sex, sleeping with anybody, any man, you can get [cervical cancer].” However, none of the women could explain why this was so, and women did not understand the causal link between HPV infection and cervical cancer. None of the women had heard of the HPV vaccine, a vaccine to prevent cervical cancer.

Distance and Availability: Malawi’s Health Care Infrastructure

Distance to health care facilities influenced women's ability to participate in health services. “It [the hospital] is just too far” was frequently expressed among the women. Women's travel time to the Chiradzulu District Hospital ranged from 2 minutes to 4 hours (*Mean* = 58

minutes). For women who did not live near the District Hospital ($N = 16$), the average time to the nearest clinic was 45 minutes. Walking was the predominant mode of transport. Women raised concern that if vaccines were provided only at the District Hospital, it would be difficult to get their children vaccinated. Moreover, women farther from the hospital seemed to have less exposure to health information and thus had less knowledge about cervical cancer and prevention. This finding was corroborated by additional reports from the interviewed women, who noted that they received most of their health education “from health personnel at the hospitals.”

Availability of medical resources was also mentioned throughout interviews as having influence over women’s access to health care. As one woman noted, “Most times we do find the vaccine out of stock, and this worries me. Also there is a shortage of staff here [rural clinic] and at the district hospital.” Despite these shortages, many of the women did not suggest that this prevented their participation in vaccination programs. For example, many women noted that when shortages of vaccines occurred, they would “simply” go back to the clinic a different day or wait for HSAs to deliver the vaccine to their village.

Risk Perceptions: “Cervical Cancer is Serious”

All the women believed that “cervical cancer is a serious disease in Malawi” and supported preventive measures. Cervical cancer was typically believed to be a “death sentence.” As explained, “[cervical cancer] is a serious disease, since I heard that most of the women have severe vaginal bleeding and by losing the blood women can easily die.” Indeed, the majority of women who had known someone with cervical cancer ($n = 18$) reported that this person had died.

The idea that cervical cancer was a death sentence was enhanced by the fact that women felt they did not have enough information to protect themselves. As one woman reasoned, “It is a problem because we don’t have any education, so if you have it [cervical cancer] that means it is the end of your life.” Women perceived the seriousness of the disease to be exacerbated by the fact that cervical cancer can affect women at childbearing age: “It is a really serious problem, since most of the women are dying of it and they are leaving their children unattended without someone to take care of them.”

Vaccine Receptiveness

For many women, witnessing declines in vaccine-preventable diseases were particularly relevant to their understanding and acceptance of vaccination. For example, many women noted that during a measles outbreak, children who had received their vaccines were not affected by the disease. As one woman explained, “In Malawi in the past when they didn’t have the vaccine, children were just suffering and dying, but this time they have all the necessary vaccines, this encourages me to go and get them vaccinated.” Receptiveness to vaccination was also supported in the finding that all the women reported that their children had received at least one vaccine and that their experiences with vaccinations had been positive.

Although none of the women had heard of an HPV vaccine, when given basic information by the researcher on the vaccine's target age group and dosage, all participants were accepting of the vaccine. As one woman suggested, "There is no risk of getting the vaccine, but the risk can come if you don't go with your children at the hospital, because they can be affected by cervical cancer." A few women mentioned a slight fear of unknown side effects but reported that this would not prevent them from getting their child vaccinated against HPV.

All the women indicated that the three-dose requirement for the HPV vaccines would not change their decision about the vaccine. As one woman indicated, "Even if it is more than three times, I will go to the hospital with my children and receive the vaccine since I know the benefits." In addition, many of the women ended the interview by expressing their desire for the vaccine to become available. For example, "Since cervical cancer is a serious problem, when would it be possible to have the vaccine to prevent cervical cancer here in Malawi?"

Women's Role: Maternal and Community Responsibilities

Women repeatedly expressed that the health of their children was a priority: "It is important for my child to be healthy." Women tended to view themselves as primarily responsible for the health of their children, because it was the "woman's job, as a mother." Universally, women reported that they would make sure, like they had with previous vaccines, that their child received the HPV vaccine if it became available.

Women also felt that it was their responsibility to share their knowledge with the community. Specifically, women indicated that they wanted to participate in, and be responsible for educating other women about cervical cancer. All the women specified that they would recommend the HPV vaccine to people in their community when and if the vaccine were available: "I can share this information with my friends and even other women who have children so that their children will be protected as well."

Trust in Medical Professionals' Recommendations

Although some women indicated that they had used traditional medicine, all the women reported that they preferred to get medical care from the hospital or local clinic. In support of these claims, all the women had been to the hospital or a health clinic within the last 3 months, 23 of them having been within the prior month.

Women reported that they trusted health recommendations the most when they came from hospital personnel, and when deciding to get a new vaccine, most women indicated that health professionals first must recommend the vaccine: "When they advice the vaccine it means that the hospital has seen that it is good, and it is really important in the community to receive this vaccine." One woman even suggested, "If the doctor recommended the vaccine, nothing would stop me from receiving it."

Moreover, women mentioned that recommendations from medical personnel had facilitated their participation in previous vaccine programs: "Usually it's after educational information

that we get from the health promoters about the importance of getting vaccines that encourages us to go to the hospital to get the vaccines for children.”

Women’s Recommendations for HPV Vaccine Delivery

Women believed that HPV vaccine uptake would be highest if the vaccine were delivered to each village on a specific date. Some women felt that having community health workers go door-to-door would be the most effective way to distribute the vaccine. Other women felt that the hospital, school, or village headman should set a specific date for children to receive the vaccine from health personnel. Saturday was thought to be the best day because children are out of school, and parents do not go to church.

Women felt that HPV vaccine acceptance and uptake would be increased if cervical cancer information were dispersed throughout the community and endorsed by the government. For example, “I think that if the government put [cervical cancer information] everywhere, in the communities, on the radios, in the hospitals, and every time we come to the hospital we receive information, this would make us participate.”

DISCUSSION

This study focused on the barriers and facilitators to HPV vaccination for Malawian women. This is the first known study to examine knowledge and attitudes regarding HPV and HPV vaccination among Malawian women. Women’s limited knowledge about cervical cancer and Malawi’s health care infrastructure emerged as key barriers to future vaccination programs. However, women’s acknowledgement of responsibility for children’s immunizations, their trust in health professionals’ recommendations, and their desire to be peer health leaders could be used to facilitate HPV vaccination strategies. More importantly, women were extremely accepting of vaccines and efforts to prevent cervical cancer, because cervical cancer was perceived to be a serious health concern.

Similar to previous studies (Brewer & Fazekas, 2007; Fort et al., 2011; Gottlieb et al., 2009), cervical cancer knowledge and the causal relationship of HPV were low. However, despite participants’ limited knowledge, they were generally accepting of HPV vaccine efforts. Existing vaccinations were thought to be extremely beneficial among the women, and likewise they believed that an HPV vaccine would also be beneficial. This finding is particularly promising because PATH (2009) demonstrated that confidence in vaccination was significantly related to HPV vaccination acceptance. It is likely that HPV vaccine acceptance reflects a general acceptance of vaccination among Malawian mothers, rather than knowledge regarding cervical cancer and HPV prevention. Increasing the public’s cervical cancer knowledge should be a priority in prevention efforts so that the public can make informed decisions about their health.

Malawi’s overburdened health care infrastructure may present challenges to HPV vaccine strategies. Researchers have documented that distance and limited health resources contribute to poor health care utilization in Malawi (Kambala et al., 2011; Namakhoma et al., 2010). To date, Malawi has had difficulty providing cervical cancer screening and treatment services (Fort et al., 2011; Taalo, 2008); however, HPV vaccination offers a

promising solution, because widespread vaccine programs have already demonstrated to be successful within the context of Malawi. Although participants noted that vaccines were at times unavailable and that trained medical personnel were scarce, this was not typically perceived as something that would prevent participants from getting their children vaccinated. Nonetheless, it is imperative that future programs secure adequate resources and trained medical personnel to ensure widespread utilization of the HPV vaccine.

A body of literature posits that HPV vaccine costs and fear of premature or risky sexual activity are significant challenges to HPV vaccine uptake (Brewer & Fazekas, 2007); however, neither of these factors was apparent in the present study. Malawi receives external funding to provide free vaccines, therefore women would be unlikely to consider cost as a barrier. Moreover, Malawi qualifies for GAVI's assistance program, so cost is not likely to be a future barrier. Some studies have demonstrated that fear of HPV vaccination condoning risky sexual activity is not always a factor among at-risk groups, particularly those in developing countries (Gottlieb et al., 2009; Kwan et al., 2008). Women's limited knowledge about HPV and cervical cancer may contribute to the lack of concern over associations with sexual activity. On the other hand, Harries and colleagues (2009) found that South Africans typically express support for the HPV vaccine, despite concerns of cost and condoning sexual activity, because limited medical resources prevent cervical cancer screening programs from being effective, and alternative programs are greatly needed.

Results from these interviews suggested that women's roles in Malawian society can be utilized to promote various facilitative actions that may enhance cervical cancer prevention efforts. Malawian women tend to be caretakers and are often held responsible for the health and well-being of those around them (Lindgren, Rankin, & Rankin, 2008). Women tended to view themselves as primarily responsible for the health of their children and unanimously reported that they would make sure, like they had with previous vaccines, that their child received an HPV vaccine if it became available. Studies have indicated that mothers are particularly important in regard to vaccine uptake among children because they typically have primary responsibility for children's health care (Jenkins et al., 2000). In addition, parents who participate in early childhood vaccines are more likely to support and have their children vaccinated against HPV (Kumar & Whynes, 2011). The prospect of HPV vaccination programs, therefore, holds much promise. Moreover, having their children participate in HPV vaccination affords women greater exposure to information about cervical cancer, which may increase opportunities to discuss and promote cervical cancer screening programs among women who would be ineligible for the HPV vaccine.

Not only do women have important maternal responsibilities, but their caretaker role might also foster communal relationships with other women. Women in this study repeatedly expressed a desire to be peer health leaders and wanted the opportunity to share important health information regarding cervical cancer prevention in their communities. Malawi has had difficulty securing adequate medical resources, including personnel who can deliver health information in rural communities. The strategic use of women as "peer health leaders" could be used to demystify cervical cancer, promote HPV vaccination, and provide a cost-effective means for health education delivery.

Study participants repeatedly indicated that they preferred and trusted health care information the most when it came from health care professionals. Specifically, if a new vaccine were available, women would want their health care provider to recommend it before they vaccinated their children. It is clear from these findings that health care professionals will play an important role in HPV vaccination acceptance and uptake in Southern Malawi. Thus, it is important for health care professionals to receive further training about HPV vaccination and cervical cancer, and they should be encouraged to share this information with their patients.

This study was not without its limitations. First, in-depth, semi-structured interviews produce rich qualitative data; nevertheless, due to the small, potentially non-representative sample, the accuracy and generalizability of the results are restricted (Creswell, 2007). Research about cervical cancer in Malawi will benefit from the triangulation of qualitative and quantitative methods from a more representative sample. Second, perspectives from community stakeholders, policymakers, and health care providers will provide important information regarding the logistical underpinnings of instituting an HPV vaccination program. Third, as an outsider to Malawian culture, certain cultural nuances may have eluded the primary researcher; however, the research team included Malawian counterparts who took great care in discussing and reviewing the results. Although the primary researcher was not Malawian, the participants provided little indication of social acceptability bias or reticence about responding to questions posed during the interviews. Their responses were very candid.

Overall, the study's findings shed light on the multiple barriers and facilitators that can influence acceptance and uptake of HPV vaccination in Malawi. Mobilizing available resources, including educating women about HPV and the vaccine, encouraging women to become peer health leaders, equipping health care providers with HPV vaccination and cervical cancer training, and including the HPV vaccine in current immunization programs will be crucial steps in Malawi's efforts to reduce cervical cancer incidence and mortality. By taking into account women's experiences within their social environments, health care providers and policymakers will be better able to design and fund gender- and culturally-sensitive cervical cancer prevention programs that maximize positive health outcomes.

Acknowledgments

The authors thank the women who participated in this research study and Drs. Aaron Buseh, Katie Mosack, Ray Fleming, and Susan Lima. They also thank their Malawian counterparts, Mike and Glory Maulidi and Agnes Mchere, for their assistance with the design and implementation of this study. Finally, they thank Malawi's Ministry of Health and Population for allowing them to conduct this research. The authors acknowledge funding received from NIH (R25 CA132960).

REFERENCES

- Alliance for Cervical Cancer Prevention. Cervical cancer prevention: Fact sheet. 2011 Retrieved from http://www.alliance-cxca.org/files/ACCP_cxca_screening_2011.pdf.
- Becker-Dreps S, Otieno WA, Brewer NT, Agot K, Smith JS. HPV vaccine acceptability among Kenyan women. *Vaccine*. 2010; 28:4864–4867. [PubMed: 20566394]
- Brewer NT, Fazekas KI. Predictors of vaccine acceptability: A theory informed systematic review. *Prev Med*. 2007; 45:107–114. [PubMed: 17628649]

- Centers for Disease Control and Prevention. Recommendations on the use of quadrivalent human papillomavirus in males: Advisory Committee on Immunization Practices, 2011. *MMWR*. 2011; 60(50):1705–1708. [PubMed: 22189893]
- Chow SN, Soon R, Park JS, Pancharoen C, Qiao YL, Basu P, Ngan HY. Knowledge, attitudes, and communication around human papillomavirus (HPV) vaccination amongst urban Asian mothers and physicians. *Vaccine*. 2010; 28:3809–3817. [PubMed: 20347631]
- Creswell, JW. *Qualitative inquiry and research design: Choosing among five approaches*. 2nd ed.. Thousand Oaks, CA: Sage; 2007.
- Einstein MH, Phaeton R. Issues in cervical cancer incidence and treatment in HIV. *Curr Opin Oncol*. 2010; 22(5):449–455. [PubMed: 20613518]
- Fort VK, Makin MS, Siegler AJ, Ault K, Rochat R. Barriers to cervical cancer screening in Mulanje, Malawi: A qualitative study. *Patient Prefer Adher*. 2011; 5:125–131.
- Francis SA, Battle-Fisher M, Liverpool J, Hipple L, Mosavel M, Soogun S, Mofammere N. A qualitative analysis of South African women's knowledge, attitudes, and beliefs about HPV and cervical cancer prevention, vaccine awareness and acceptance, and maternal-child communication about sexual health. *Vaccine*. 2011; 29:8760–8765. [PubMed: 21855591]
- Glanz, K.; Rimer, BK.; Viswanath, K. *Health behavior and health education*. San Francisco, CA: Jossey-Bass, A Wiley Imprint; 2008.
- Gottlieb SL, Brewer NT, Sternberg MR, Smith JS, Ziarnowski K, Liddon N, Markowitz LE. Human papillomavirus vaccine initiation in an area with elevated rates of cervical cancer. *J Adolescent Health*. 2009; 45:430–437.
- Harries J, Moodley J, Barone MA, Mall S, Sinanovic E. Preparing for HPV vaccination in South Africa: Key challenges and opinions. *Vaccine*. 2009; 27:38–44. [PubMed: 18977271]
- Horo A, Jaquet A, Ekouevi DK, Toure B, Coffie PA, Effi B, et al. The IeDEA West Africa Collaboration. Cervical cancer screening by visual inspection in Côte d'Ivoire, operational and clinical aspects according to HIV status. *BMC Public Health*. 2012; 12:237–242. [PubMed: 22443255]
- Jenkins CNK, McPhee SJ, Wong C, Nguyen T, Euler GL. Hepatitis B immunization coverage among Vietnamese-American children 3–18 years old. *Pediatrics*. 2000; 106:1–8. [PubMed: 10878140]
- Kagire E. Rwanda: First Lady to launch anti-cervical cancer campaign. *The New Times*. 2011 May 9. Retrieved from <http://allafrica.com/stories/201104260085.html>.
- Kambala C, Morse T, Masangwi S, Mitunda P. Barriers to maternal health service use in Chikhwawa, Southern Malawi. *Malawi Med J*. 2011; 23(1):1–5. [PubMed: 23638247]
- Kumar VM, Whynes DK. Explaining variation in the uptake of HPV vaccination in England. *BMC Public Health*. 2011; 11:172. [PubMed: 21426539]
- Kwan TTC, Chan KKL, Yip AMW, Tam KF, Cheung ANY, Young PMC, et al. Barriers and facilitators to human papillomavirus vaccination among Chinese adolescent girls in Hong Kong: A qualitative-quantitative study. *Sex Transm Infect*. 2008; 84:227–232. [PubMed: 18256106]
- Lindgren T, Rankin SH, Rankin WW. Malawian women and HIV: Socio-Cultural factors and barriers to prevention. *Women Health*. 2008; 41(1):69–86. [PubMed: 16048869]
- Namakhoma I, Bongololo G, Bello G, Nyirenda L, Phoya A, Phiri S, et al. Negotiating multiple barriers: Health workers' access to counseling, testing and treatment in Malawi. *AIDS Care*. 2010; 22(1):68–76. [PubMed: 20680862]
- National Statistics Office and ICF Macro. *Malawi Demographic and Health Survey 2010*. Zomba, Malawi/Calverton, MD: Author; 2011.
- Nguyen A, Datta SD, Schwalbe N, Summers D, Adlidge G. GAVI Alliance. Working towards affordable pricing for HPV vaccines for developing countries: The role of GAVI. Working Paper and Background Series, No. 3, Harvard Global Equity Initiative. 2011
- Oetzel, JG.; Ting-Toomey, S.; Rinderle, S. Conflict communication in contexts: A social ecological perspective. In: Oetzel, JG.; Ting-Toomey, S., editors. *The Sage Handbook of conflict communication: Integrating theory, research and Practice*. Thousand Oaks, CA: Sage; 2006. p. 727-739.
- Palmer D. Tackling Malawi's human resource crisis. *RHM*. 2006; 14(27):22–39.

- PATH and Child Health and Development Centre. Shaping a strategy to introduce HPV vaccines in Uganda: Formative research results from the HPV Vaccines: Evidence for Impact Project, 6–7. Seattle: PATH; 2009.
- Sandfort JR, Pleasant A. Knowledge, attitudes, and informational behaviors of college students in regard to the human papillomavirus. *J Am Coll Health*. 2009; 58(2):141–149. [PubMed: 19892651]
- Strauss, A.; Corbin, J. Basics of qualitative research: Grounded theory procedures and techniques. Newbury Park: Sage; 1994. p. 159-189.
- Taulo F. Audit of gynaecological cancers Queen Elizabeth Central Hospital, Blantyre. *Malawi Med J*. 2008; 20(4):140–142. [PubMed: 19537398]
- United Nations Children’s Fund. Malawi—Statistics. 2012 Retrieved from http://www.unicef.org/infobycountry/malawi_statistics.html.
- United Nations Development Program. HHR. 2011 Retrieved from <http://hdr.undp.org/en/statistics/>.
- World Bank. Malawi: Physicians (per 1,000 people). 2012. Retrieved from [http://search.worldbank.org/data?qterm=malawi&_topic_exact\[\]=Health](http://search.worldbank.org/data?qterm=malawi&_topic_exact[]=Health).
- World Health Organization. Preparing for the introduction of HPV vaccines: Policy and programme guidance for countries. 2006. Retrieved from http://www.who.int/reproductivehealth/publications/cancers/RHR_06.11/.
- World Health Organization. Advocacy, communication and social mobilization for TB control: A guide for developing knowledge, attitude and practice. 2008. Retrieved from http://whqlibdoc.who.int/publications/2008/9789241596176_eng.pdf.
- World Health Organization. Outbreak news. *WER*. 2009; 84:117–132. [PubMed: 19360984]

TABLE 1

Participants' Demographic Information *

Variable	Mean	Range
Age (years)	32	18–46
Education	Grade 6	0–Grade 12
Years married	12	0–20
Number of children	4	0–8
Mean age of children (years)	11.5	0–29
	Total number (<i>N</i> = 30)	Percentage (100%)
Language:		
Chichewa	<i>N</i> = 30	100%
Marital status:		
Married	<i>N</i> = 26	87%
Polygamous union	<i>N</i> = 5	19%
Monogamous union	<i>N</i> = 21	81%
Divorced	<i>N</i> = 3	10%
Widowed	<i>N</i> = 1	3%
Income		
Husband worked	<i>N</i> = 16	53%
No income (farmed)	<i>N</i> = 14	47%
Sex of children		
Female	<i>N</i> = 41	54%
Male	<i>N</i> = 35	46%
Participated in cervical screening	<i>N</i> = 6	20%
Diagnosed with cervical cancer	<i>N</i> = 1	3%

* The sample's demographic information is representative of demographic information collected from the Malawi Demographic and Health Survey 2010 (NSO & ICF Macro, 2011).

TABLE 2**Barriers and Facilitators to HPV Vaccination**

Barriers		Facilitators	
1	Limited knowledge	1	Cervical cancer is a serious disease
2	Malawi's health care infrastructure:	2	Receptive to vaccination
	• Distance to health services	3	Women's role:
	• Availability of health resources		• Maternal
			• Communal
		4	Trust in health care providers

Author Manuscript

Author Manuscript

Author Manuscript

Author Manuscript