



Hip Hop, Health, and Human Papilloma Virus (HPV): Using Wireless Technology to Increase HPV Vaccination Uptake

Tami L. Thomas, Dionne P. Stephens, and Beverlee Blanchard

ABSTRACT

National incidence rates of cervical cancer are disproportionately higher in African-American women, and cancers related to human papillomavirus (HPV) infection impose an enormous health burden of over \$3.7 billion annually. Current efforts to use Hip Hop culture to address health disparities include disease prevention and health promotion. The use of Hip Hop cultural cues for HPV vaccination uptake and education was developed through an interdisciplinary collaboration.

Interventions that incorporate youth values and beliefs are needed to reduce an escalating HPV infection trajectory. Prior research has shown that Hip Hop music has a significant influence on the sexual attitudes and behaviors of African-American emerging young women, providing a context within which to prevent risky behaviors. The current study examines the efficacy of a Hip Hop-based HPV vaccination uptake feasibility project that integrates wireless technology among African-American female college students. Findings suggest that cultural relevance of Hip Hop to the lives of young African-American women increases the acceptability of transmitted health messages. Discussion is centered on implications of wireless technology and Hip Hop as a viable approach to increase HPV vaccination, and a formal randomized control trial is planned.

Keywords: HPV vaccine, Hip Hop culture, healthcare disparities, theory of reasoned action, wireless technology

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INTRODUCTION

Using Hip Hop music and a review of previous, successful Hip Hop interventions, a health promotion message about human papillomavirus (HPV) vaccine for young African-American women attending universities and colleges was developed and tested. We theorize that the health outcomes of young women, in particular the very low uptake of the HPV vaccine in both adolescents and young women, can be improved by infusing Hip Hop into a culture-specific health promotion intervention using cell phone technology to increase HPV vaccine uptake.

BACKGROUND

Health: Realities of Cervical Cancer for Young Women

National incidence rates of cervical cancer (8.4 cases per 100,000 population) are disproportionately higher in African-American women (10.8 cases per 100,000 population) and Hispanic women (13.2 cases per 100,000 population) in the southern United States.¹ Complete prevalence rates of cervical cancer by race are not available, but we know that cervical cancer is caused almost entirely by HPV infection.² Current prevalence rates for all HPV infections are increasing, with over 20 million persons infected to date.³⁻⁴ Data for incidence and prevalence rates for HPV infection are limited because there is no routine screening for HPV and no mandatory reporting of HPV infection, and it is often unclear as to whether an HPV infection is newly acquired or longstanding.⁵ The deadliest sequela of HPV infection is cervical cancer.⁶⁻⁷ Costs of secondary prevention for cervical cancer have soared. Treatment costs for cervical cancer and the related costs for management of cervical dysplasia (the presence of abnormal cervical cells), including colposcopies which are not always needed, exceed 3 billion dollars annually.⁸

HPV Infection and HPV Vaccine Uptake

In 2006, the Food and Drug Administration licensed the first vaccine developed to prevent cervical cancer caused by certain types of HPV.⁹⁻¹⁰ These types of HPV are responsible for approximately 99% of cervical cancers and 90% of genital warts.¹¹ The Centers for Disease Control (CDC)

Advisory Committee on Immunization Practices¹² subsequently voted unanimously to recommend that girls aged 11 and 12 years receive the HPV vaccine to prevent cervical cancer and related morbidities. Safety was determined after testing the vaccine in over 18,000 females aged 9 to 26 years around the world, with no significant side effects.¹³ The HPV vaccine is given in a series of three shots over a 6-month period. The vaccine can be administered to girls as young as 9 years old and is also recommended for women up to 26 years of age who have not yet received or completed the vaccine series.¹⁴

National incidence rates of cervical cancer are disproportionately higher in African-American women and Hispanic women in the rural south, including Georgia.^{12,15-17} Cancers related to HPV infection impose an enormous health burden of over \$3.7 billion annually.¹⁸ These human and fiscal costs can be markedly reduced if the HPV vaccine is given prior to a female's first sexual contact.⁹⁻¹⁰

The CDC recommends vaccinating girls at 11 or 12 years of age so they may receive maximum benefit from the vaccine series.¹⁹ Nationally, HPV vaccine uptake is

less than 26% in young women 18 to 24 years old, and the sexual debut in this age group is age 15 nationally for African-Americans and Hispanics.^{13,20}

Incidence rates of cervical cancer are rising in African-Americans and Hispanics experiencing health disparities, and, shockingly, vaccine uptake by all women of this age is below 28%.²¹ Prior research has identified the lack of culturally

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appropriate interventions as barriers to vaccination uptake in African-American populations.²²⁻²³ Therefore, it is important to identify culturally specific nursing interventions to disseminate information in an accepted format used by these young women who are at a high risk of HPV infection.

USE OF CULTURALLY APPROPRIATE TOOLS FOR HEALTH EDUCATION

Wireless Technologies

Researchers across disciplines emphatically agree that interventions seeking to achieve changes in the attitudes

toward and beliefs about racial/ethnic-minority sexuality that fail to recognize the unique cultural messages that influence these processes are likely to fail.²⁴ For example, young women have grown up with technologies allowing faster and more direct information consumption, particularly as it relates to health outcomes, making internet, cell phone, BlackBerry, iPhone, and iPod devices important tools for education.²⁵⁻²⁸

Furthermore, the ways in which these wireless technology tools and culture-specific messages influence behavioral outcomes can differ across racial/ethnic groups, making it important to integrate frameworks that reflect values and expressions relevant to these young women.²⁹⁻³⁰ Recognizing this, we have chosen to integrate two cultural tools that have been identified as playing central roles in young adult African-American women's daily lives: wireless technology tools, namely cell phones; and Hip Hop culture frameworks.

Current research has highlighted the importance of media dissemination tools for young women, particularly those using new wireless technologies. The wireless technologies would be particularly useful for developing innovative, culture-specific health promotion interventions that engage populations of busy students who are slower to respond to traditional health education approaches. As a generation that is "wired in" and "wireless," young women rely upon wireless technologies as a central source of connection to issues they view as relevant to their lives, including health information.³¹⁻²⁶ Although the research is limited, preliminary studies indicate that young women would prefer, and consistently utilize, health services that are promoted through wireless technologies such as cell phones and BlackBerry, iPhone, and iPod technologies. In their examinations of how adolescents use technology for their health information needs, Skinner et al.²⁶ found that privacy in accessing information technology was a second key challenge. When listing their preferences for receiving health information, participants listed four domains in the following order: personal communications (e.g., telephone, cell phone, and pager); social communication (e.g., e-mail, instant messaging, chat,

and bulletin boards); interactive environments (e.g., Web sites, search engines, and computers); and unidirectional sources (e.g., television, radio, and print).²⁶

Cell phones are particularly important, given their easy access and high rates of "ownership" among young adults. Studies of the usefulness of cell phones for reaching out to adolescent and young adult populations have found that that this technology is viewed as accessible and preferred.^{26,32}

In a study of smoking cessation, Obermayer et al.³² found the use of cell phones was an effective method for sending text messages that decreased smoking among college-aged students.

Hip hop has a significant amount of influence over these consumers across various social and health issues.

Hip Hop

Hip Hop would then serve as an ideal framework through which to integrate media technology-based HPV infection health promotion efforts for African-American emerging adult populations. Originally an urban African-American cultural response to Reaganomics, Hip Hop has gone through various phases via message foci, controlling bodies, consumption, and acceptability. Today Hip Hop is a multifaceted culture that includes such cultural expressions as musical styles, language usage, value and belief systems, racial/ethnic and gender identity, and general behavioral expectations.^{30,33-36} Hip Hop is now a mainstream culture consumed in various areas of daily life (e.g., school curricula, advertising, financial consumption, healthcare). Prior research has shown that adolescents and young adults commonly use e-mail, instant messaging, and music downloading software to consume Hip Hop cultural content.^{27,37-38} The growing body of research examining Hip Hop consumption across these media acknowledges that Hip Hop has a significant amount of influence among these consumers across various social and health issues.

Research on sexual health decision making and outcomes among African-American adolescents and females highlights the relevance and importance of integrating Hip Hop specifically into sexual health promotion contexts. A growing body of psychological and public health research has examined the influence of Hip Hop culture on African-American women's sexual health outcomes,

clearly indicating their sexual health decision making processes and beliefs are influenced by this culture. Viewing Hip Hop images with high levels of sexual content was also found to increase women's negative attitude toward condom use and increase their desire to conceive.³⁹⁻⁴⁰ Stephens and Few^{30,33} found that African-American adolescents not only recognized stereotypical sexual scripts in mainstream Hip Hop videos but saw them as accurate portrayals of real-life sexual behavioral guidelines for their peers.

These findings also point to the potential benefits of Hip Hop as a culturally appropriate vehicle for the promotion of protective health behaviors. Several sexual health efforts have utilized elements of Hip Hop; interventions targeting human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) risk and sexual risk reduction among African-American adolescents have been found to be successful when Hip Hop culture was integrated into their designs.^{37-38,41} The Hip-Hop 2 Prevent Substance Abuse and HIV (H2P) project⁴², for example, effectively educated urban, middle-school youth to avoid substance use and engage in safe sexual health behaviors, using Hip Hop modalities as teaching/communication media. Another study evaluated an HIV/AIDS risk reduction intervention that uses Hip Hop music to increase sexual communication between adolescents and their parents.³⁸ Findings indicated that the intervention significantly increased participants' communication with parents regarding sexual intercourse, sexually transmitted diseases, who to go out with, pregnancy, and appropriate dating and sexual behaviors. Further interventions that used cell phone technologies have proven to be effective, and recommendations have been made to replicate the method with other important health messages and primary prevention methods.⁴³⁻⁴⁴

These research findings substantiate Hip Hop's important role in health education in combination with wireless technologies as a successful vehicle for health promotion. This feasibility project has been developed to integrate both Hip Hop and wireless technology. This

feasibility project chose Hip Hop music and images as the vehicle to send positive health promotion messages. This project uses the important multilayered relationships that Hip Hop may use to influence young adult African-American women to educate them and prevent HPV transmission and infection. More specifically, the long-term goal of this innovative primary prevention methodology is to increase acceptance of HPV vaccination messages and likelihood of completing the three-injection vaccine series. The role of public health nurses, nurse practitioners, health educators, and researchers is to ensure that parents and young women over 18 are given accurate and timely information so they can make an informed decision to receive or decline HPV vaccination, an individual choice.

FEASIBILITY PROJECT DESCRIPTION

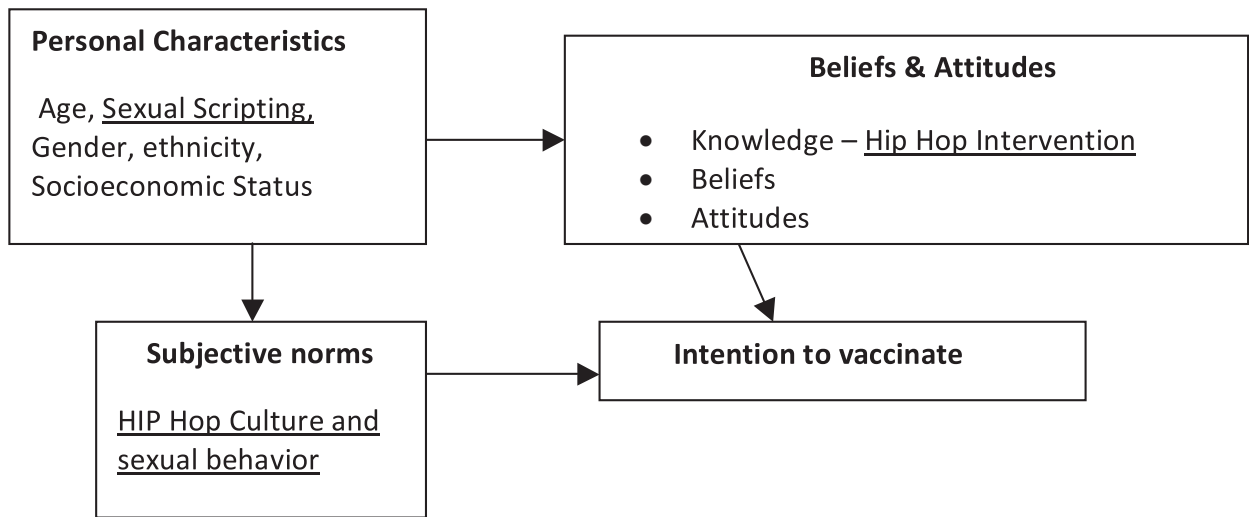
The purpose of this feasibility project was to determine whether HPV vaccine uptake broadcast by wireless technology using Hip Hop culture and media would be successfully transmitted. If this was the case, this wireless

approach could be used as an intervention to inform young African-American women about the HPV vaccine. Informal and spontaneous statements from students directed the development and choice of media images and messages. The theory of reasoned action⁴⁶ is the basis for the conceptual framework for this pilot research (Fig. 1). Consistent with the theory of reasoned action, we hypothesize that knowledge of HPV (provided

by the wireless Hip Hop Intervention), attitudes and beliefs, personal characteristics, and subjective norms would have direct effects on HPV vaccine uptake. The concept of subjective norms has a unidirectional relationship with behavioral intent. In this adapted model, greater knowledge of HPV is expected to increase intent and HPV vaccine uptake.⁴⁷ Negative beliefs about sexual activity/promiscuity and factors that increase likelihood of sexual activity are expected to decrease the intent to vaccinate. These conceptual relationships are supported by literature that examines how exposure to sexually

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Figure 1. Relationship among personal characteristics, beliefs and attitudes, and subjective norms and their effect on young adults' intent to obtain the HPV vaccination. Based on the theory of reasoned action.⁴⁶



explicit content, topics that focus on sexuality, and exposure to Hip Hop music will increase sexual activity in adolescents and young adults.⁴⁸ In the theoretical model, personal characteristics include age, gender, race/ethnicity, and socioeconomic status. We predicted that Hispanics and Africans-Americans would report less intent or lower HPV vaccine uptake due to healthcare disparities that include poor access to health information and health care services. Subjective norms refer to thoughts about the beliefs of significant others and the influence of Hip Hop represented in Fig. 1. We hypothesized that students will increase their intent to vaccinate if their intentions are supported by significant others, partners, friends, family, and knowledge (health promotion messages from wireless technology and cell phones in combination with Hip Hop culture) so that HPV vaccine uptake would increase in this group (Fig. 1).⁴⁹

WIRELESS HIP HOP PROJECT DESCRIPTION

After a thorough review of the literature and informal feedback, several attempts to develop a health promotion message were attempted. First, the attachment of an MP3 music file with an e-mail message was piloted. This proved to be too cumbersome, and the HPV health promotion message was either blocked, diverted to an e-mail spam file, or an error messages was sent to the health promotion message center. The second set of trials attempted a text message with Hip Hop images. These messages were successfully sent, but devices identified the

large image files as spam, and they were diverted from BlackBerry and iPhone inboxes.

The challenge was then passed to information technologists who collaborated with a nurse scientist to develop a message file with a special ring tone that could be identified by cell phones or BlackBerry and iPhone devices. Mass distribution of a single message with a small Hip Hop music file and a message that directed students to resources where they could receive the HPV vaccine or get the next shot in the three-shot series was the challenge. A successful trial was completed, and a formal randomized trial is in development.

WIRELESS HIP HOP PROJECT RESULTS

The results showed that the wireless Hip Hop project was a success. Specific health promotion messages were repeatedly sent to cell phones and Blackberry and iPhone devices. The wireless Hip Hop feasibility project identified several strengths of this innovative intervention. First, it was culturally specific and appealing to young African-American women. Spontaneous feedback included, "Look at this – hmm; different, pretty dope." Second, once implemented within a specific service provider area, the messages were easy to replicate and send. The messages were also free to send, and this is a huge plus during a time when health promotion efforts are crippled by financial constraints. In addition, this intervention can now be used for other types of health promotion campaigns including preventing HIV infection, reducing

binge drinking, and encouraging condom use, all of which are health risk behaviors found in young women who attend universities and colleges in the United States and which are challenges in health promotion and health literacy interventions.⁵⁰⁻⁵³

In contrast, there were weaknesses that must be addressed prior to the implementation of the large randomized control trial. First, this intervention is dependent on participants having one of the following: a cell phone, a Blackberry, or an iPhone. Second, message retrieval and delivery are dependent upon the cell phone carrier of participants and the health promotion message center. If the participants do not have the same carrier, cost maybe prohibitive for the health promotion message center. The other challenge is that some participants may not be interested in Hip Hop songs or the culture itself. Finally, it must be said that this very technologically savvy group of at-risk young adults' may still ignore the message.

DISCUSSION

Challenges to increase HPV vaccination in young women over the age of 18 are clear. These challenges are cost, access, and accurate information. The availability of accurate health information is not consistent for young women in an era of access to health information using You-Tube and other internet resources. It is apparent that interventions of the past such as health information forums, flyers, and hardcopy paper materials no longer have an impact with this current generation of young women who integrate information technology into almost every minute of their lives.⁵⁴ Past primary health promotion information measures were well meaning, but the valuable information may be ignored by this current generation of texting, You-Tube-, and Twitter-focused young women.

The challenge, then, is to use a vehicle and format that will not be ignored by young women. Collaborations between academic disciplines can address this challenge. Nurse researchers and developmental psychologists who collaborate on innovative interventions can lay the ground work to meet the challenge of communicating valuable health information in a format such as information technology in an appropriate context such as Hip Hop. Cell phone text messages have been used in smoking cessation programs in this age group, and the recommendations are to use the wireless technology because it is popular and accessible to this population.³²

While the challenges, such as lapses in technology services and reception, impeded the feasibility of sending Hip Hop content, they can be overcome. We encourage others to utilize this format because of its potential impact to increase HPV vaccination. The use of HPV vaccination remains low for all young women, but Hip Hop, when used as a vehicle to send the reminder message to begin the series or complete it, is valuable. In addition, increasing health literacy using this information technology format is valuable to promote the health of all young women, regardless of race. Hip Hop culture has a mainstream appeal for young women and it has the perfect appeal to transmit life-saving information, increase HPV vaccine use, and reduce cervical cancer and related morbidities **JNP**

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