

Facebook for Health Promotion: Female College Students' Perspectives on Sharing HPV Vaccine Information Through Facebook

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Abstract

Facebook, a social network site, has been widely used among young adults. However, its potential to be used as a health promotion medium has not been fully examined. This study explored Facebook's potential for sharing human papillomavirus (HPV) vaccine information among female college students in Hawai'i. Culturally tailored flyers and handouts were developed and distributed at one large university in Hawai'i to recruit female college students between the age of 18 and 26 having an active Facebook account. Three focus group meetings were conducted to gather student perspectives about how information about HPV vaccine may be best shared via Facebook. We found that students believed Facebook is a good awareness tool but they needed more knowledge about the HPV vaccine to feel comfortable sharing the information. Participants preferred forwarding information to chatting about HPV. Some participants expressed concern that their Facebook friends would think the HPV vaccine information they forwarded on Facebook is spam. Participants suggested prefacing the posted HPV vaccine information with a personal note in their own words to make the message more interesting and relevant to their Facebook friends. Future interventions using Facebook to promote HPV vaccine could provide students with HPV vaccine information from credible sources and ask students to attach personal testimonials or endorsements while forwarding the information on Facebook.

Keywords

Health promotion, HPV vaccine, Facebook

Introduction

Human papillomavirus (HPV) is the most common sexually transmitted virus in the United States, affecting about 79 million Americans.¹ HPV can cause cervical cancer in women, which is the second leading cause of cancer deaths among women around the world.² Besides cervical cancer, certain HPV infections can also cause vaginal, vulvar, anal, and oropharyngeal cancers, and genital warts and warts in the throat. HPV vaccine can provide protection against specific strains of HPV most often associated with cervical cancer, vaginal and vulvar cancer, and genital warts.² Routine vaccination is recommended for girls aged 11 to 12.² However, the catch up vaccine is also recommended for females between the ages of 13 and 26 years.²

Evidence suggests that women between the ages of 18 and 26 are likely to be exposed to HPV and unlikely to be vaccinated. One cohort study in Hawai'i found that about one in four (25.6%) women aged between 18 and 85 with normal cytology suffered from cervical HPV infection at study entry.³ However, lower uptake rates of HPV vaccine are reported among young women aged 18-26 years than among 13-17 year-old girls.^{4,5} In 2012, only about 34.5% of the US females ages 19-26 had initiated HPV vaccine.⁶

According to a systematic review of literature, knowledge is the main barrier for women's acceptance of HPV vaccine.⁷ Knowledge of HPV was associated with more favorable attitudes toward HPV vaccine and higher intention to vaccinate among female college students.^{8,9} However, less than half of US adult women who reported hearing about HPV knew that HPV causes cervical cancer.¹⁰ One of the few existing studies targeting college students in Hawai'i found that their knowledge about HPV was low.¹¹ Out of 14 questions that addressed knowledge about HPV and abnormal Pap smears, about half (55.7%) of the sample correctly answered five or fewer questions.¹¹

Social network sites (SNSs), particularly Facebook, have great potential to increase knowledge about HPV vaccine among female college students. About three in four (76%) female adults who used the Internet in the United States were using Facebook in 2013.¹² A previous study at one university found that 77.7% of the students who had accounts on SNSs were using those sites several times a day; and 90.7% of these students who had accounts on SNSs were using Facebook more often than other SNSs.¹³ Furthermore, in a systematic examination of the use of SNSs for sexual health promotion, Facebook was found to be the most commonly used SNS (71%).¹⁴ However, the majority of sexual health promotion activities using SNSs have not been reported in scientific literature.¹⁴

Electronic word of mouth (eWOM) is a term used to describe online statements made by customers about a product received by multiple people.¹⁵ Use of eWOM about HPV vaccine may increase the reach of the information exponentially on Facebook if the messages are subsequently forwarded. Furthermore, eWOM on SNSs can be used for tailored health communication to provide informational support.¹⁶ Social support provided via eWOM on SNSs was found to impact college students' intention to participate in leisure-time physical activity indirectly by influencing attitudes and subjective norms.¹³ One recent randomized trial found that eWOM from peer leaders on Facebook was effective in increasing home-based HIV testing among African American and Latino men who have sex with men.¹⁷ Thus, this study aimed to explore female college students' perspectives on sharing HPV information via eWOM on Facebook in Hawai'i.

The design of research questions for this study was based on two theories, the Theory of Planned Behavior (TPB) and the Path Model of Antecedents and Consequences of Online Word of Mouth (Path Model). TPB posits three predictors of intention: attitude (which is determined by the individual's beliefs about outcomes or attributes of performing the behavior, weighted by

evaluations of those outcomes and attributes), subjective norm (which is the belief about whether important others in an individual's life approve or disapprove of the behavior and the motivation to comply with those people), and perceived behavioral control (which is the individual's perceived amount of control over behavioral performance, determined by one's perception of the degree to which various environmental factors make it easier or more difficult to carry out the behavior).¹⁸ According to the Path Model,¹⁹ there are two behavioral consequences of online word of mouth: online forwarding and online chatting. Apart from chatting using users' own words, Internet content can be forwarded directly using URLs, reaching an exponential number of users if subsequently forwarded by others.²⁰ Thus, this study explored the female college students' attitudes, subjective norms, and perceived behavioral control associated with forwarding information about HPV and chatting about HPV.

Methods

Procedures

Fliers and handouts were designed and distributed at one large university in Hawai'i. The research team designed a localized flyer entitled, *We need your kokua (help)!* that included pictures of females from Hawai'i. Focus groups were conducted with 14 college women aged 18-26 years who had an active Facebook account in three small groups of three to six participants. The first author facilitated two of the focus group meetings. One of the focus groups was facilitated by a trained community member. The facilitator and note-taker both took notes in each focus group meeting. The length of the focus group meetings ranged from 30 minutes to about an hour. Participants received \$10 gift cards as incentives. This study was approved by the Native Hawaiian Health Care System Institutional Review Board on March 3, 2011 (FWA# 00000589).

Instrument

At the beginning of each focus group meeting, participants were asked questions about their age and marital status; if they had heard about HPV vaccine; how long they had used Facebook; if they had ever read HPV vaccine information on their Facebook wall; and if they had ever posted HPV vaccine information on their Facebook wall.

Focus group discussions were led by a semi-structured question guide based on all the concepts in the TPB and the Path Model. Chatting was defined as creating messages about HPV vaccine using one's own words and posting it on one's Facebook wall. Forwarding was conceptualized as sharing an existing HPV vaccine message, link, picture, video, etc, on one's Facebook wall. Sample questions of attitude, subjective norm, perceived behavioral control, and intention about chatting and forwarding included: What do you think about chatting about HPV vaccine on your Facebook wall? What do you think your friends on Facebook would think about forwarding HPV vaccine information on your Facebook wall? How confident would you feel about chatting about HPV vaccine on your Facebook wall? How are you going to share HPV vaccine information on your Facebook wall?

Analysis

We used theme analysis methods to analyze the focus group transcripts.²¹ Notes recorded by the facilitator and the note-taker for each focus group meeting were compared immediately after each meeting. Disagreements were reconciled after each focus group meeting to ensure that the notes were consistent with each other. The notes were reviewed multiple times by two members of the research team and coded for key themes. Coding discrepancies were discussed and reconciled. Given several repetitive themes in the data, we believe we achieved saturation.²¹

Results

Participant Characteristics

Participants' ages ranged from 19 to 26, with a mean age of 22. Only one of the participants was married. The average length of usage for Facebook was 34.5 months. Thirteen of the 14 participants had heard of the HPV vaccine. None of the participants had shared HPV vaccine information on Facebook.

Although the majority of the participants reported hearing about the HPV vaccine, they demonstrated a lack of knowledge of the vaccine. Only one participant had been vaccinated. One participant had "heard of Gardasil® but [did not] know what it [was] for." There were some misconceptions about the vaccine including the recommended age range for vaccination. For example, one participant stated that "it is a shot you get before you are 23." Another participant reported that "I heard it was meant for people with HPV in their family, so I tuned out after I heard that." Participants also expressed concern about the effectiveness of the vaccine. One participant told the group, "it does not work." Another participant shared that "I remember I was thankful I didn't get it because it increases cancer and they said that the adverse effects outweigh the benefits." The main findings of four major TPB themes for chatting and forwarding respectively are outlined below.

Attitude

Chatting

The majority of participants (10 out of 14, 71%) showed a favorable attitude toward chatting about the HPV vaccine on Facebook. For example, one student mentioned "It's an advocacy thing. I see people put up posts of what they stand up for." Another noted it was "good information-wise." Two students felt that they would be able to show positive attitudes only after they were provided more information about HPV vaccine. For example, one student said "I would not mind if you [the researchers] give the facts." The other said "I would have to be more knowledgeable but don't mind doing it [chatting about it]." Two participants opposed that idea saying "I would not do it," and "I don't think I would do it. [Because I am] not sure who I would post it to."

Forwarding

The majority of participants (12 out of 14, 86%) demonstrated favorable attitudes towards forwarding. One participant pointed out "If I agree with it, if I support it, I will send it." Furthermore,

among the 12 participants who showed favorable attitudes, five preferred forwarding over chatting. For example, one participant stated “I like this idea better [than chatting].” Another participant explained “links are easier because you aren’t taking the blame. It’s less troublesome.” Two participants showed hesitation about forwarding because of the concern that “it [might be perceived to be] like a spam link”.

Subjective Norm

Chatting

Participants revealed different subjective norms regarding chatting about the HPV vaccine. Five participants (36%) felt it would be “no problem”; one stated, “It [was] no big thing.” Apart from these five participants, one participant also mentioned that her friends would think “It is for a good cause. They would say it’s cool.” Another participant commented, “A lot of my friends would understand. They are at the age to get it. It’s pretty relevant, and good for your health.” Consistently, another participant suggested that “people will be interested in the information related to them.” One participant was not sure “how much they (her friends) would care. A lot of people read Facebook posts if they are funny or about people they know.”

However, two students (14%) were concerned about their friends’ approval. One of them mentioned that “If I did [post on Facebook], they would probably think “This girl’s weird.” The other participant agreed with that and stated “it depends on whether it is a fact or stating [a] (personal) opinion (about HPV vaccine).”

Forwarding

Three participants (21%) raised the concern that their friends would think the information forwarded was “spam.” Participants also compared their friends’ potential approval of them chatting versus forwarding information on HPV vaccination. One participant mentioned the advantage of forwarding over chatting: “If they don’t like it they don’t have to open it;” “If they don’t like it, they can always delete it. There is more of a choice.” One participant noted “It would have to be relevant to them to make it interesting. Friends probably are more interested in chatting than forwarding.” Another participant argued “people will also be interested in forwarding because information comes from organizations or institutions”. Two participants pointed out what contents their friends might like: “if it has cool music or has a video, they will like it;” “if it is associated with a place they live in (they will like it).”

Moreover, students recommended personalized messages (adding their own words before the existing message and link) to make the information more likely to attract their friends on Facebook. For example, one participant suggested “You have to include a personal message like, ‘Hey, you should check this out.’” Two participants also said that personalizing messages made them more relevant to their friends: “If you add a personal touch you will make it more relevant, since its health information they may want to read it more.”; “It would have to be relevant to them and to make it interesting.”

Perceived Behavioral Control

Chatting

Three participants indicated that they felt confident and comfortable chatting about the HPV vaccine on Facebook. For example, one participant noted “I would be comfortable. It’s a positive message.” However, a lack of knowledge was listed as the main barrier to chatting about the HPV vaccine. Three students stated that if they knew more about the vaccine, they would feel more confident about chatting: “If I knew more about it, I would feel more confident”; “First I must know it well then I can tell others”. One participant mentioned commenting on HPV vaccine related information: “Depends [on] what it is saying. If it’s too pro for it, I’d rather not. If it’s neutral or factual, it is okay.” Another participant indicated that she would feel comfortable chatting about HPV “[o]nly if it’s useful information for my friends.”

Forwarding

Seven participants expressed confidence in forwarding HPV vaccine information. For example, one participant mentioned that “As an awareness tool, it [was] good.” In addition, one participant said she would be confident “but only if it’s facts” and three other participants agreed with her opinion. Another participant indicated that “I would read it first and send out only if I agree.” One specified that a credible source of information would enhance their enthusiasm and confidence in sharing information: “If it was from a good, reliable source, I would feel confident.”

Intention to Share HPV Vaccine Information on Facebook

Ten of the fourteen students (71%) indicated their willingness to share HPV vaccine information on Facebook. However, one participant did not want to share HPV vaccine information because “I did not get it so I’m not comfortable telling others” and two other participants agreed. In terms of the way they preferred to share the information, most of the students were more comfortable with forwarding. For example, a student mentioned that she did not want to create messages: “I am not keeping up with research so I feel bad creating my own message. I would do it if you (the researcher) share a link, as long as you give information. I don’t want to make up stuff.” Another participant agreed “yeah, you give people [the] link to access it themselves.”

Combinations of both chatting and forwarding were recommended by three participants. One participant suggested that “in the beginning it would be easier to forward information. After we look at the information and get a better idea, we can do more of the chatting.” One participant also preferred combinations “because I’m more likely to check it out if you address it to me.” Another participant thought “combination (of chatting and forwarding) would be good. I post everything and post health stuff too. Like, I would link my diabetes walk to Facebook. ‘Donate to me’ personalize a little bit. As long as (it is) a credible link.”

Discussion

The focus group meetings showed that although some female college students in Hawai'i have heard of HPV, their knowledge level about the vaccine is low and there are some misconceptions about HPV and HPV vaccine. This is consistent with the findings of another study targeting college students in Hawai'i.¹¹ Thus, more education about the basic facts about HPV and HPV vaccine, such as the recommended age range for vaccination and effects, should be tailored to female college students aged between 18 and 26. Public health practitioners need to make sure that students being recruited to share HPV vaccine information on Facebook have accurate knowledge about HPV vaccine.

This study found that that increased knowledge of the HPV vaccine was associated with a more favorable attitude towards chatting and forwarding content about HPV vaccine on Facebook. Regarding subjective norms, this study found that usefulness and relevance of the information to one's friends is an important consideration among female college students in deciding whether or not to share HPV vaccine information. Students felt that their friends would approve their chatting or forwarding as long as the messages were useful or relevant. Future interventions promoting HPV vaccine on Facebook could use sample messages such as "This message is important and useful for your friends. Please share it with them on your Facebook wall." Additional formative research could be conducted to investigate how to make the messages appear more relevant, interesting and useful to college students.

Students demonstrated different perceived behavioral controls for, and intentions toward, chatting and forwarding. In general, students preferred forwarding existing information from a reliable source. They felt it was easier than chatting, and reported that not having to take personal responsibility for the content made forwarding a better option, especially when they were not well informed about HPV. Furthermore, personalizing the existing information from a reliable source was recommended by the participants. Students preferred receiving targeted messages tailored to them rather than being forwarded a link or an existing message. Future strategies to increase public health messaging on Facebook should provide students with existing messages, links, video, etc. and encourage them to append their own words to the message when they share it on Facebook.

This study shed light on different potential roles students could play in future health promotion campaigns on Facebook. Public health educators could recruit two groups of students to initiate eWOM about HPV vaccine on Facebook. The first group could be health sciences students who already have medically accurate information and have supportive attitudes

toward vaccination. These students could then be peer opinion leaders to encourage others. The second group could be those students who have already been vaccinated. They could serve as role models and share their own experience and justification for getting the HPV vaccine.

This study was limited due to one small convenience sample from one university. The participants were relatively older (average age of 22) than the general college student population. Future research could benefit from randomized sampling and collecting more demographic information including ethnicity, year in college, major, etc. Although the purpose of the focus group meetings was to gain a depth of understanding of people's perspectives rather than generalizing the findings to a large population,²¹ the findings of this study shed light on future applications for Facebook in sharing HPV vaccine information among college students.

Conclusions

This study found students have positive attitudes about chatting on Facebook about HPV vaccine if they have adequate knowledge about the topic. Participants felt that a personalized message together with a link from a credible source about HPV vaccine would have a greater likelihood of being noticed or read. Future health promotion campaigns should consider students with more knowledge about HPV vaccine as messengers likely to personalize and initiate HPV vaccine eWOM.

Conflict of Interest

None of the authors identify a conflict of interest.

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Reference

1. Centers for Disease Control and Prevention. Genital HPV Infection - Fact Sheet. 2014; <http://www.cdc.gov/std/HPV/STDFact-HPV.htm>. Accessed September 30, 2014.
2. Centers for Disease Control and Prevention. Human Papillomavirus vaccine Gardasil: what you need to know. 2014; <http://www.cdc.gov/vaccines/pubs/vis/downloads/vis-hpv-gardasil.pdf>. Accessed September 30, 2014.
3. Goodman MT, Shvetsov YB, McDuffie K, et al. Prevalence, Acquisition, and Clearance of Cervical Human Papillomavirus Infection among Women with Normal Cytology: Hawaii Human Papillomavirus Cohort Study. *Cancer Research*. 2008;68(21):8813-8824.
4. Stokley S, Cohn A, Dorell C, et al. Adolescent Vaccination-Coverage Levels in the United States: 2006–2009. *Pediatrics*. 2011; 128(6): 1-9. doi: 10.1542/peds.2011-1048.
5. Jain N, Euler GL, Shefer A, Lu P, Yankey D, Markowitz L. Human papillomavirus (HPV) awareness and vaccination initiation among women in the United States, National Immunization Survey-Adult 2007. *Preventive Medicine*. 2009;48(5):426-431.
6. Centers for Disease Control and Prevention. Noninfluenza vaccination coverage among adults — United States. 2014; <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6305a4.htm>. Accessed September 30, 2014.
7. Chan ZC, Chan TS, Ng KK, Wong ML. A systematic review of literature about women's knowledge and attitudes toward human papillomavirus (HPV) vaccination. *Public Health Nursing*. 2012;29(6):481-489.
8. Jones M, Cook R. Intent to receive an HPV vaccine among university men and women and implications for vaccine administration. *Journal of American college health*. 2008;57(1):23-32.
9. Licht AS, Murphy JM, Hyland AJ, Fix BV, Hawk LW, Mahoney MC. Is use of the human papillomavirus vaccine among female college students related to human papillomavirus knowledge and risk perception? *Sexually Transmitted Infections*. 2010;86(1):74-78.
10. Tiro JA, Meissner HI, Kobrin S, Chollette V. What Do Women in the U.S. Know about Human Papillomavirus and Cervical Cancer? *Cancer Epidemiology Biomarkers & Prevention*. 2007;16(2):288-294.
11. Bertram CC, Niederhauser VP. Understanding Human Papillomavirus: An Internet survey of knowledge, risk, and experience among female and male college students in Hawaii. *American Journal of Health Education*. 2008;39(1):15-24.
12. Duggan M, Smith A. Social Media Update 2013. 2013; <http://www.pewinternet.org/2013/12/30/social-media-update-2013/>. Accessed September 30, 2014.
13. Zhang N, Campo S, Yang JZ, Janz JF, Sneltselaar LG, Eckler P. Effects of social support about physical activity on social networking sites: applying the Theory of Planned Behavior. *Health Communication*. In press.
14. Gold, Judy, et al. A systematic examination of the use of online social networking sites for sexual health promotion. *BMC Public Health*. 11.1(2011):583.
15. Hennig-Thurau T, Gwinner KP, Walsh G, Gremler DD. Electronic word-of-mouth via consumer-opinion platforms: What motivates consumers to articulate themselves on the Internet? *Journal of Interactive Marketing*. 2004;18(1):38-52.
16. Liang B, Scammon DL. E-Word-of-Mouth on health social networking sites: An opportunity for tailored health communication. *Journal of Consumer Behaviour*. 2011;10(6):322-331.
17. Young SD, Cumberland WG, Lee S-J, Jaganath D, Szekeres G, Coates T. Social networking technologies as an emerging tool for HIV prevention: a cluster randomized trial. *Annals of Internal Medicine*. 2013;159(5):318-324.
18. Ajzen I. The theory of planned behaviour: reactions and reflections. *Psychology & Health*. 2011;26(9):1113-1127.
19. Sun T, Youn S, Wu G, Kuntaraporn M. Online Word-of-Mouth (or Mouse): An Exploration of Its Antecedents and Consequences. *Journal of Computer-Mediated Communication*. 2006;11(4):1104-1127.
20. Ho JYC, Dempsey M. Viral marketing: Motivations to forward online content. *Journal of Business Research*. 2010;63(9–10):1000-1006.
21. Krueger RA. *Focus Groups: A Practical Guide for Applied Research*. 1994.