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Human papillomavirus vaccine motivators and barriers among community college students: Considerations for development of a successful vaccination program



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ABSTRACT

Background: Previous interventions in colleges to improve human papillomavirus (HPV) vaccination have not been highly successful. Although barriers have been assessed in traditional colleges, less is known about vaccination barriers in community colleges.

Methods: We approached students aged 18–26 years old enrolled at a community college for an inperson semi-structured qualitative interview on HPV vaccination and health, with questions guided by the Theory of Planned Behavior. Data collection took place between April 2015 and December 2015. Thematic analysis techniques were used to analyze the data.

Results: During interviews with 19 students, 4 themes emerged, including: general vaccine attitudes, barriers to HPV vaccination, motivators to HPV vaccination, and social influences. Participants felt that vaccines were beneficial, but were concerned about side effects. They felt that getting the HPV vaccine would be inconvenient, and they did not know enough about it to decide. Most would not trust their friends' opinions, but would want to know about side effects that their vaccinated friends experienced.

Conclusions: Successful interventions at community colleges should include several components to increase convenience as well as utilize interactive methods to promote HPV vaccine awareness.

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1. Introduction

HPV vaccination is expected to significantly reduce incidence and mortality associated with HPV-related cancers in countries with high uptake of the vaccine [1]. There is evidence that administration of the HPV vaccine, even among young women who received the vaccine after 12 years of age, is effective at preventing vaccine-type HPV infections in the general population [2,3]. Despite its proven effectiveness, only 12% of females and 3% of males reported initiating the HPV vaccine after 19 years of age [4]. One possible reason for the low rate among young adults is their decreased health care utilization, which presents providers with fewer opportunities to vaccinate those in this age group [5].

Colleges are one place where young adults can be reached. Several studies have examined the impact of education interventions on improving knowledge and initiating HPV vaccination among

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college students with varied results, depending on the population assessed and how the information was presented [6]. For example, one intervention significantly raised the proportion of students vaccinated, but vaccination rates remained low at 22% [7]. Another intervention, which consisted of a detailed discussion about HPV. distribution of a HPV fact sheet, and a mailed reminder did not significantly influence HPV uptake [8]. Only 6% of college students received 1 dose of the vaccine after this intervention and close to a third of those who intended to get the vaccine did not view themselves at risk of HPV infection or cervical cancer [8]. Another intervention among female university students who participated in an online tailored educational session found an increase in knowledge, but no change in intent to be vaccinated [9]. Finally, one study found an increase in knowledge among college students recruited at a health fair following an educational intervention. However, the baseline knowledge was low, with participants answering questions correctly as little as 14% of the time prior to the intervention [10]. Results using electronic messaging reminders among college students found no increase in the 3-dose HPV vaccine series completion rates [11]. The low success rates

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of these programs indicate that barriers and motivations around HPV vaccination are not well understood in this age group, and standardized questionnaires may not be capturing the information that must be addressed to develop a more successful intervention.

Very little information is available on students attending community college as most studies on young adults focus on those attending four-year universities or enrolled in managed care plans. Community college students make up approximately half of all undergraduate students in the US, and include highly diverse populations. About 36% are the first generation to attend college [12]. They are considerably more diverse than 4 year university students, with a higher proportion from lower socioeconomic status and from underrepresented ethnicities, such as Hispanics. Many of these students are also considered non-traditional students, such as those working while enrolled. [13] and may face more barriers to healthcare than students attending a 4-year university. Thus, an in-depth qualitative study that examines the barriers and motivations of community college students related to HPV vaccination is needed. The purpose of this study was to evaluate motivations and barriers among community college students 18-26 years of age.

2. Method

Students attending a community college located in Southeast Texas participated in individual semi-structured qualitative interviews with questions based on the Theory of Planned Behavior between April and December 2015. They were recruited through flyers and a televised advertisement system on campus as well as through on-campus recruitment. Students 18–26 years old that were currently enrolled in the community college were purposively sampled because they are eligible to get the HPV vaccine series if they had not already received it, or may complete the series if they had not previously received all 3 doses. We are reporting the methods for this study using the Consolidated criteria for Reporting Qualititative research (COREQ) [14].

The guiding framework for the data collection was based on the Theory of Planned Behavior (TPB), a psychological model that explains performance of a behavior through the joint functions of intention and perceived behavioral control [15]. The TPB suggests that individual behavioral intentions and behaviors are shaped by attitudes toward those behaviors, subjective norms, and perceived behavioral control. Semi-structured interview questions were tailored to the vaccination status of participants (non-initiator, non-completer, completer) to maximize relevance of the interview for each participant.

Interviews were completed during a single meeting that lasted no longer than 1 h with students previously unknown to the researchers. Data were collected by 4 female interviewers, including 2 researchers with PhDs, a medical student, and an undergraduate student from a 4-year university (JMH, DNB, TTG, and Elizabeth Stone). Before each interview, the purpose of the study was explained and informed consent obtained. On average, the actual interviews lasted 30 min. All interviews were audio recorded and transcribed verbatim, then checked for accuracy. Participants were recruited and interviewed until data saturation was reached. Participants chose a gift valued between \$21 and \$23 to compensate them for their time. The University of Texas Institutional Review Board approved this study.

2.1. Data analysis

Thematic analysis techniques were used to analyze data in order to pinpoint and examine common themes. Three reviewers developed preliminary inductive codes based on the emerging themes and independently applied the codes to four of the transcripts. They then met to discuss their coding process and modifications, and to develop a code book they applied to all transcripts. The 2 reviewers ensured coding accuracy and consistency by reviewing each other's coding process and addressing disagreements in coding. All coding was conducted using the NVivo qualitative data analysis software (QSR International Pty Ltd. version 10, 2012). Coders met regularly to discuss comparisons of coding using NVivo generated node reports and reached consensus about the categories.

3. Results

Participants in this study included both males and females in similar proportions (Table 1). The diversity of the student body is reflected in the racial/ ethnic characteristics reported by the respondents. A total of 19 community college students participated in this study, of which 9 (47.4%) were non-initiators (had not received any doses of the HPV vaccine), 3 (15.8%) were noncompleters (had received at least 1 dose of the vaccine but had not completed all 3 doses), and 7 (36.8%) were completers (had received all 3 doses). Eighteen students did not participate after showing interest in the recruitment efforts, of which 10 did not have time and 8 did not reschedule missed interview appointments. More than half were enrolled in the community college full-time. Over half had health coverage either through Medicaid or private health insurance. Several had either experienced a gap in their insurance coverage, or were unaware whether they had been covered continuously by insurance during the past 12 months. We found that 37% of respondents had a full- or parttime job when they were interviewed.

In general, participants had positive perceptions about vaccination (Table 2). Participants with neutral attitudes toward vaccination indicated they did not "mind getting shots," "did not have a problem with getting them," or that their parents made the decision for them. Students with negative feelings about vaccination expressed reluctance to get vaccinated. They felt that vaccines

Table 1Characteristics of community college interview participants (N = 19).

Gender	n (%)
Male	10 (52.6)
Female	9 (47.4)
Race/ethnicity	
Hispanic	5 (26.3)
White	6 (31.6)
Black	5 (26.3)
Biracial/other	3 (15.8)
Vaccine status	
Unvaccinated	9 (47.4)
Non-completer	3 (15.8)
Completer	7 (36.8)
Current enrollment status	
Full-time	11 (57.9)
Part-time	8 (42.1)
Current insurance type	
Medicaid	5 (26.3)
Private health insurance	6 (31.6)
No coverage	4 (21.0)
Don't know	4 (21.0)
Insurance gap in past 12 months	
Yes	6 (31.6)
No	10 (52.6)
Don't know	3 (15.8)
Employment status	
Full-time	3 (15.8)
Part-time	4 (21.0)
Not employed	12 (63.2)

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