

BACKGROUND

Background

- Human papillomavirus (HPV) is an extremely common sexually transmitted infection which can cause genital warts and several cancers, including cervical cancer.
- HPV vaccination is recommended for individuals aged 9 to 26 years old. Based on updated guidelines, individuals aged 27 to 45 years may also get vaccinated against HPV after discussion with their healthcare provider.
- Though the HPV vaccine has been demonstrated to be safe and efficacious, coverage rates remain low.
- College students are an at-risk group for HPV infection, and most are eligible for catch-up HPV vaccination.

Objective

- To determine the salient beliefs of college students regarding HPV vaccination using a theoretical model

THEORETICAL MODEL

- The theory of planned behavior (TPB) was designed to study or predict intention and ultimately, behavior.
- The TPB posits that intention determines behavior, and an individual's intention is influenced by three factors: their attitude toward the behavior (behavioral beliefs), subjective norms regarding the behavior (normative beliefs) and perceived behavioral control over the behavior (control beliefs).

METHODS

Study Design: Prospective qualitative study

Study Participants: College students aged 18 to 45 years old and enrolled at a large public university in central Texas

Settings: Three focus groups were conducted virtually on Zoom

Measures: Focus group questions were based on the TPB constructs including behavioral, normative and control beliefs

Behavioral Beliefs:

- What do you believe are the **advantages** of getting vaccinated against HPV?
- What do you believe are the **disadvantages** of getting vaccinated against HPV?

Normative Beliefs:

- Are there any individuals or groups who would **approve** of you getting vaccinated against HPV?
- Are there any individuals or groups who would **NOT approve** of you getting vaccinated against HPV?

Control Beliefs:

- What circumstances would make it **easy** for you to get vaccinated against HPV?
- What circumstances would make it **difficult** for you to get vaccinated against HPV?

Data Analysis:

- Content analysis was carried out by two investigators using line-by-line open coding technique. Consensus was reached through discussions. The top 5-9 beliefs, based on frequency count, were deemed salient.

RESULTS

Table 1: Participant Characteristics (N=24)

Characteristic	Frequency	Percent
Age, mean (SD)	22.1	3.2
Gender		
Female	13.0	54.2
Race		
Asian	10.0	41.7
Hispanic	6.0	25.0
Non-Hispanic Black	4.0	16.7
Non-Hispanic White	4.0	16.7
Health Insurance		
Private	18.0	75.0

- Over one hundred students indicated interest
- 28 recruited based on time, availability, and gender
- The three focus group sessions composed of a mixed gender group (session 1), women only (session 2) and men only session (session 3).
- A total of 24 students participated in the focus group sessions, eight in each session.

Focus Group Findings

- 45 beliefs
- 18 salient
 - 6 behavioral beliefs
 - 6 normative beliefs
 - 6 control beliefs

Figure 1: TPB Constructs and Salient Themes Identified

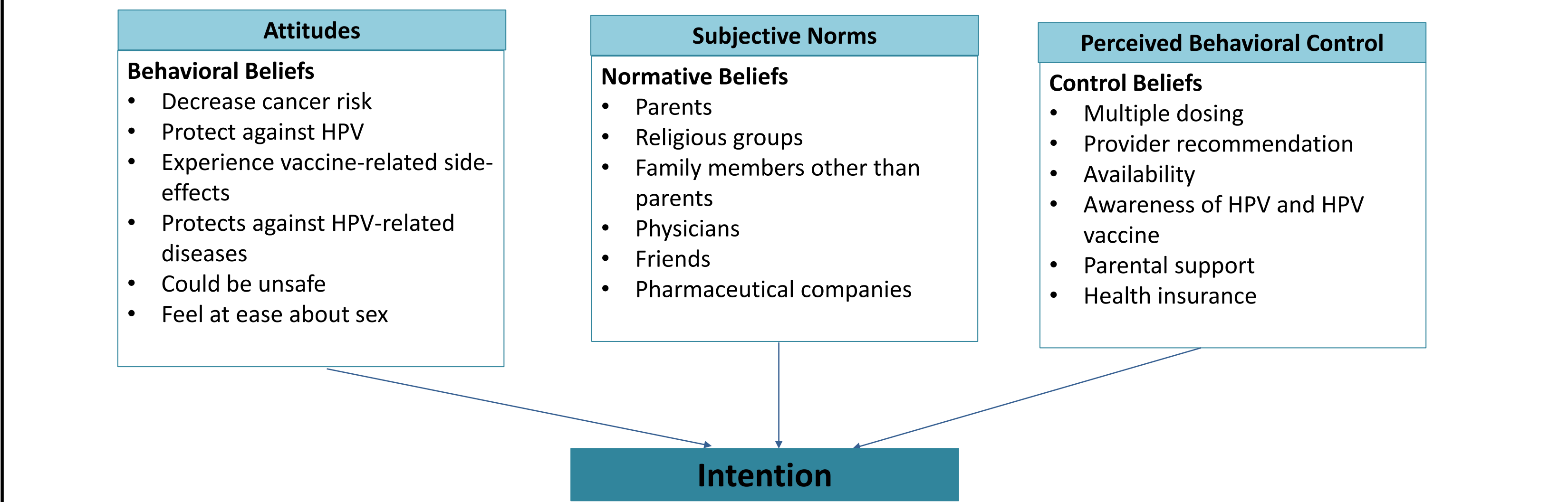


Table 2: Example Themes and Representative Quotes of The TPB Constructs

TPB Construct and Theme	Representative Quote
Attitudes – Decrease cancer risk	“I would say that I would agree, I think that protecting myself from any form of cancer is already such an advantage of getting this vaccine. And I think that it's just super innovative. And it's amazing that we have an opportunity to protect ourselves from cancer.”
Subjective Norms – Parents	“I can answer that. So, I am not, I didn't take the Gardasil shots. And that's partially because I was 11 when Gardasil came out, and my parents first reaction was, you're 11, why do you need to be vaccinated against HPV? If something like sexual is happening when you're 11, that's a crime...”
Perceived Behavioral Control – Availability	“I think going back to the example of like, going to like different countries if it's available to like easily get like other doses when you're traveling. I can help make it a lot easier.”
Perceived Behavioral Control – Multiple Dosing	“I think in general, like any vaccine, that takes like three times of getting the shots, is going to decrease the amount of people who get all three of the series. And I think in particular, given that we're in a global pandemic, people might not want to elect to go to a doctor's office three different times and risk exposure to COVID while you're decreasing your risk of exposure to HPV, like that kind of cancels out. And one of those can kill you a little bit faster. So yeah, I think that that's, that's probably a main issue, I think, for me.”

DISCUSSION

- Attitudes** were composed of beliefs regarding the disease (cancer risk, HPV), the vaccine itself (side effects, safety) and sexual activity (feeling at ease).
- Subjective norms** were composed of beliefs about family (parent, family members), friends, physicians, religious groups and pharmaceutical companies.
- Perceived behavioral control** were composed of beliefs regarding the vaccine (availability, multiple dosing), parental support, awareness, and health (health insurance, provider recommendation).
- This is a first step in a mixed-methods study to determine HPV vaccination intentions in a college population. In a second phase of this study, quantitative measures will be used to directly predict HPV vaccination intention.
- College-based interventions informed by our findings could be promoted via several channels including student health centers, student organizations, and international student offices.

CONCLUSIONS

- The TPB model was utilized through a qualitative approach to determine college students' salient beliefs about HPV vaccination.
- Three focus groups were conducted; 45 beliefs were identified, of which 18 were salient.
- Though students acknowledge that HPV vaccination is beneficial, factors that could hinder their uptake were apparent.
- Interventions that focus on or incorporate these findings could be useful in increasing HPV vaccine uptake.
- Future studies are needed to assess other factors that may influence intention in different college populations.

LIMITATIONS

- Participants were all recruited from a single, public university in central Texas, thus findings may not be representative of the population.
- The analysis did not assess whether participant responses differed by their demographic characteristics, which could have been useful in understanding their beliefs.

REFERENCES

- Genital HPV Infection. Centers for Disease Control and Prevention 2019; <https://www.cdc.gov/std/hpv/stdfact-hpv.htm>. Accessed November 12, 2019.
- Meites E, Szilagyi PG, Chesson HW, Unger ER, Romero JR, Markowitz LE. Human papillomavirus vaccination for adults: updated recommendations of the Advisory Committee on Immunization Practices. American Journal of Transplantation. 2019;19(11):3202-3206.