HPV Vaccination Interventions Among Young Adults: A Systematic Review

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Background

HPV is the most common STD in the United States with nearly 14 million people infected annually. It is responsible for nearly all cases of cervical cancer and five other cancers.[1] The CDC recommends routine vaccines through the age of 26; however, completion rates remain low, while HPV infection rates remain high among 18- to 26-year-olds.[2] Educational interventions have been shown to improve immunization uptake by influencing knowledge and attitudes.[3,4] However, it is not clear the extent to which instruments used in these interventions are validated.

Purpose

The purpose of this review is to identify the outcomes measured in HPV vaccination interventions conducted among young adults and the instruments used. Additionally, we will assess the extent to which the instruments used are validated.

Methods

- **Databases Searched:** PubMed, Web of Science, Embase, Cochrane
- **Inclusion criteria:**
  - Focused on HPV vaccination interventions
  - Examined young adults aged 18-26
  - Occurred after FDA approval of the HPV vaccine in 2006
  - Conducted within the United States
  - Peer-reviewed
  - Used quantitative or mixed-method approaches
- **Reliability and Blinding:** All of the articles were double-reviewed for reliability at each stage

Results

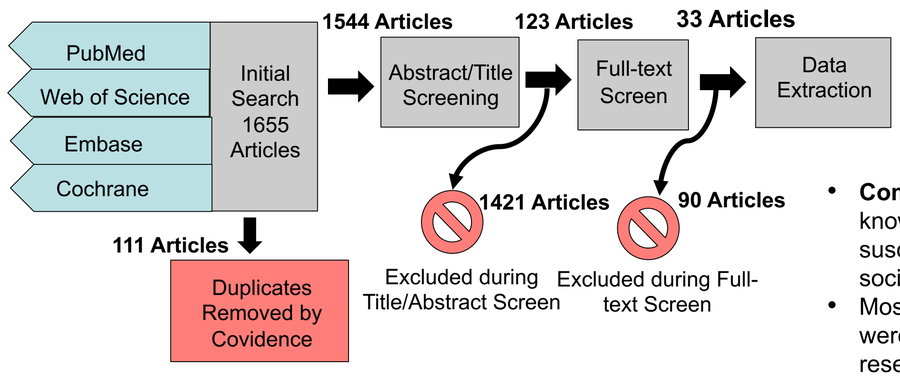

Table 1. Examples of HPV Intervention Characteristics

Author, Year, Journal	Study Design	Intervention(I) and control (C)	Outcome	Population (P) & Sample Size (S)	Setting	Results	Validity (whether report validity or not - Chronbach Alpha)
Gerend et al., 2009 Sexually Transmitted Diseases	RCT	I- 2 page intervention message on HPV infection (self protection and partner protection); C-HPV self protection message	Vaccine awareness/knowledge, Vaccine acceptability	P- Heterosexual male college students (18-24); S= 356	University	Knowledge increased from baseline: F (1354) =893.6, P <0.001.	Reported for some measures; health beliefs and intention: .79-.94. Not reported for knowledge and awareness
Brandt et al., 2020 Vaccines	Mixed Methods	I- Weekly electronic newsletters and interactive Facebook posts relevant to college students contemplating HPV vaccination; C- weekly newsletters and facebook posts related to healthy eating, activity, and weight control practices	HPV vaccination knowledge, attitudes, behaviors, intervention engagement and treatment satisfaction, vaccination status and intentions	P- Undergraduate students enrolled in an advanced health communication course (18-25); S=58	University	Knowledge improvement statistically significant in intervention compared to control.	Reported adapted from previously validated measures
Chan et al., 2015 BMC research notes	Pre-experimental	I- 18-page fotonovela on importance of HPV vaccination (english & spanish versions); C- no control	Perceptions of susceptibility to disease, perceptions of benefits of the health action, intent to vaccinate, intent to encourage others to vaccinate, knowledge	P- Male and female young adults in a low-income primary care clinic in Southern California (18–26); S=41	Healthcare /Clinic	Improvement across all outcome variables. Statistically significant improvement for susceptibility and attitude ($P < 0.05$). Increase in knowledge.	Not reported
Doherty et al., 2008 International Journal of Sexual Health	RCT	I- educational website in form of HPV information FAQ sheet (question and answer section, personal story, self-quiz); C- no educational website	Knowledge of HPV, knowledge of risk factors for cervical cancer, beliefs about perceived susceptibility to HPV, attitudes toward HPV vaccination	P- Male and female undergraduate students from 3 intro psychology courses and 1 abnormal psychology course; S= 119 (51 males and 68 females)	University	More positive attitudes, increased perceptions of risk, greater personal susceptibility to HPV than the controls at follow-up, increased knowledge. No difference in behavioral outcomes.	Knowledge: α = .82, risk factors for cervical cancer: α = .66, beliefs about risk of HPV: α = .62, attitudes toward HPV vaccination: α = .70

- **Common outcomes:** HPV knowledge, intention, susceptibility, self-efficacy, and social norms.
- Most used RCT study design and were adapted from previous research and validated models, such as the Health Belief Model
- Validity not reported for most

Conclusions

Based on preliminary data extraction:

- 33 studies met the inclusion criteria.
- Majority of these studies were conducted in populations which are often identified as having lower uptake and are at a greater risk for infection.
- Lack of validation limits comparison and raises questions about the validity of findings.
- Review will improve the quality of HPV vaccination promotion research by clarifying the status of HPV vaccination research.
- Results suggest the need for the development of validated instruments to measure HPV intervention outcomes.

Responsible Conduct of Research

The systematic review followed PRISMA protocol. No IRB approval was required.

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