The efficacy of a web-based educational intervention in promoting acceptability of the HPV vaccine

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Background

Human papillomavirus (HPV), a sexually transmitted infection and the etiologic cause of genital warts and cervical cancer, is highly pervasive in sexually active men and women (Soper, 2006). HPV strikes populations at low risk for other STIs. Research has shown a lack of HPV knowledge and misperceptions about susceptibility to contracting an STI among female university students, which influences their behaviours regarding cervical cancer prevention (Ingledue, Cottrell & Bernard, 2004).The Centers for Disease Control and Prevention's Advisory Committee on Immunization (ACIP) has rolled out recommendations for vaccinating females aged 9 to 26 years (Kaiser Family Foundation, 2006).

11-46% of female university students are found to be infected with HPV (Koutsky, 1997).

Determining the acceptability of the HPV vaccine is important because HPV is an STI that is not only detected in almost 100% of cervical cancers worldwide (Walboomers, Jacobs, Manos, et al, 1999) but strains of the virus have also been linked to 70% of anal cancers and 70% of precancerous lesions of the penis (Kaiser Family Foundation, 2006). Widespread acceptability of HPV vaccination is likely to have huge public health benefits

Rationale and Aim

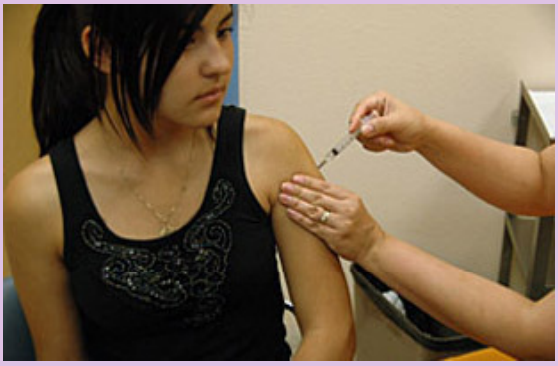
The research seeks to identify the most effective means of communicating health messages in order to move from intention to vaccinate to action. It will utilise a specially designed web-based educational intervention for behaviour change based on the principles of both the Health Belief Model (Becker, 1974) and the Theory of Planned Behaviour (Ajzen, 1988; 1991). The intervention will examine the differences in preferences for potential vaccine attributes; either as a preventative against contracting both an STI and cervical cancer or as a preventative measure solely against cervical cancer and assess changes in knowledge of HPV, greater understanding of the risk factors of HPV and intent to receive the HPV vaccine than those in the control group.

Design

A 3 3 mixed design was used with time as the within-subjects variable (baseline, post-intervention, one-month follow-up) and intervention type as the between subjects variable (cervical cancer, cervical cancer and STI, control). The dependent variables were perceived risk, intention to vaccinate, perceived behavioural control, knowledge and risk factors.

Participants and sample size

G*Power calculations estimated a sample of 108 participants based on a medium effect size and 80% power. Female university students were recruited from (a) the Psychology department, (b) by posting the study to the Irish Boards.ie forum on the university forums and (c) via Facebook. One hundred and sixty one participants participated at baseline, however following fall-off and previous HPV vaccination, full data at all 3 time points was available for 95 participants



Method

Participants were emailed a link to the online study where they completed the baseline questionnaire before being randomly assigned to one of three conditions. Interventions were timed so that each webpage was delayed for 30 seconds to allow participants to process the content before they could proceed. Interactive questions were used to test attention to the preceding information. Immediately post intervention participants completed a second questionnaire. Questions had also been randomised to avoid order effects. A link for the final stage of the study was forwarded on the day of the one-month follow-up which assessed the dependent variables.

Results

A series of 3 3 mixed ANOVAs were conducted. Although knowledge increased over time (F (2, 25) = 4.40, p < 0.001, η2 =.24), no significant effect was observed for intervention (F (2, 25) = 1.05, p = .37) or for interaction (group intervention) (F (4, 50) = .63, p = .64).

Significant improvements were observed in understanding of risk factors for cancer-focused intervention from baseline (M = 4.46, SD = 1.69) to post intervention (M = 4.87, SD = 1.63, t(88) = -2.52, p<.05) (F (2, 83) = 3.55, p < 0.05, η2 =.08) but not at one-month follow-up.

Participants in the cervical cancer focused intervention had greater PBC post-intervention (M = 5.87) than those in the control group (M = 4.96)(t(90) = 2.33, p <.05).

Intention to vaccinate increased over time overall (F (1.18, 161.73) = 9.85, p < 0.001). Both experimental conditions showed a significant increase in intention to vaccinate from baseline to post-intervention (P<.05). These effects did not carry over to the one-month follow-up.

Conclusions

The results of this study show some positive benefits for an online intervention in increasing knowledge, awareness of risk factors, PBC and intention to obtain the HPV vaccine, particularly in the cancer-focused intervention group. These effects were mainly observed immediately post-intervention, however, and did not carry over in the longer term. The results suggest that online interventions have some merit but a once-off intervention may have limited efficacy.