

Pretesting inoculation messages for HPV vaccine misinformation

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Background: Inoculation theory uses prebunking messages to protect people from misinformation about human papillomavirus (HPV) vaccine that results in delayed or refused vaccination. **Objectives:** We aim to test the argument strength of prebunking messages to counter common misinformation about HPV misinformation. **Methods:** We conducted a national survey of parents of children ages 8-12 years in March 2023. Participants were randomly assigned to either read a control message or a series of 6 pro-HPV vaccine arguments randomly selected from a set of 59. Pro-vaccine messages were developed based on the existing literature and iteratively refined using the study team's expertise. After reading each message, participants assessed the argument's strength on a scale of 1-5 across four items. We averaged the scores across items (higher score represents increased argument strength in support of HPV vaccination). After reading and rating the control or intervention messages, participants viewed 5 randomly ordered anti-HPV vaccine misinformation messages that were widely circulated on Twitter and rated as highly concerning in our prior research. Participants were asked how much they agreed that the statement gave them a believable reason to avoid getting the HPV vaccine for their child (1= Strongly disagree, 5= Strongly agree). **Results:** Among the 523 participants, 66% were female, 55% were non-Hispanic white, 38% were black, 17% were Hispanic, and 42% had completed a college degree or higher. Each pro-vaccine argument was rated an average of 4.2 times. Of the 59 arguments tested, 27 were rated significantly stronger than the simple control message ($p < .05$). The mean argument strength was 3.62 (SD=.84); the control message mean was 3.37 (SD=.96). Messages about vaccine effectiveness, disease prevention, and HPV facts were rated significantly stronger (vs. messages without those topics). Messages about the credibility of anti-vaccinators (vs. without) were rated significantly weaker. Viewing messages higher in argument strength was associated with higher vaccine intent. The mean believability score of the five misinformation messages was 3.18 (SD=1.06). Participants were considered susceptible to misinformation if their mean believability score was ≥ 4 (34% of participants, $n=179$). Viewing strong prebunking messages lowered the odds of being susceptible to misinformation (OR=.26, $p=.04$). **Conclusion:** Our study describes pro-HPV vaccination messages that are more likely to generate positive attitudes toward the vaccination based on perceived argument strength. The strongest arguments will be used in future messages designed to inoculate caregivers against misinformation about HPV vaccines.

Disclosures: This work was supported by NIH Grant 5-R37-CA-259210-02. GZ has served as an external advisory board member for Moderna and Pfizer, and as a consultant to Merck. He also has received investigator-initiated research funding from Merck administered through Indiana University.