
An Evaluation of Printed HPV Educational Materials

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Introduction

Genital human papillomavirus (HPV) infection is the most common viral sexually transmitted infection (STI) and is likely the most common STI in the United States.^{1,4} Genital HPV infection is an important public health concern because persistent oncogenic (also called high-risk) HPV infection is the main etiologic factor for cervical cancer, causing almost 100% of all cervical cancer cases worldwide.⁵⁻¹⁵ Information about HPV infection is often confusing to patients and health information seekers, especially given the currently low levels of HPV knowledge among adults and inherently complex characteristics of HPV.¹⁴⁻¹⁸ For this reason, information on HPV can also be challenging for clinicians to convey to patients.¹⁶⁻²⁷ HPV educational materials should be a viable source of accurate and meaningful information for women and should complement clinician counseling to reinforce important HPV information and to assist women with medical decision making. The purpose of this study was to formally evaluate printed HPV educational materials by determining the readability, suitability, and HPV content of existing, printed HPV educational materials selected by the authors.

Methods

Twenty-one educational materials were identified and selected for evaluation through a Web-based search of printed HPV educational materials, and two materials were selected based on their use in local clinical settings. All identified materials were quickly scanned to ensure that those selected contained information about STIs, abnormal Pap test results, and/or cervical cancer. All materials reviewed were written in English. An alphabetical listing of educational materials by publisher appears in the Appendix.

The available literature, professional research experience of the authors in this field, women's frequently asked questions about HPV, and consensus statements were reviewed and considered prior to evaluation to determine the selected 12 HPV content areas to be addressed in written educational materials and included in this evaluation.^{3,5,7,9-11,19,22,23,28-33} The 12 HPV content items were (1) genital HPV infection is sexually transmitted, (2) HPV is a virus or viral infection, (3) HPV is a common STI, (4) there are two types of HPV: high-risk and low-risk, (5) HPV may cause cervical cancer, (6) HPV may cause genital warts, (7) HPV may cause Pap test abnormalities, (8) HPV may affect pregnancy, (9) HPV signs and symptoms can be treated but not the virus itself, (10) HPV is spread via skin-to-skin contact, (11) condoms do not always prevent the spread of HPV, and (12) it is important to have regular Pap tests to check for HPV.

Five experienced and qualified evaluators were identified and trained to evaluate the selected HPV educational materials for readability (Simplified Measure of Gobbledygook [SMOG] and Fry Method), suitability (Suitability Assessment of Materials [SAM]), and HPV content (developed by authors).³⁴⁻³⁷ Prior to independently conducting the evaluation, the evaluators separately received written and verbal instructions based on the guidelines and procedures set forth by the authors of the readability and suitability assessments and those developed by the authors for the HPV content assessment.³⁴⁻³⁷

Results

The readability (ie, reading grade level), SAM, and content scores for each educational material are presented in the Table. Nine materials scored within the recommended grade reading level of written materials (between 8th and 9th grade based on the average reading level of a cross section of the average adult population) for the general population. However, the average reading grade level of the other 12 materials was greater than 12th grade (range: 9.5 to 16.3).³⁷ The average SAM score across the five raters was 37.4% (range: 14.0% to 59.2%), which is considered "not suitable" based on the SAM ratings (0% to 39%). Twelve materials scored as "not suitable," nine scored as "adequate" (40% to 69%), and none scored as "superior"

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Suitability Assessment of Materials (SAM), Readability, and HPV Content Assessment of Materials Scores for Each Educational Material (Random Order)

Material Number	Readability			SAM Average (Range)	HPV Content Average (Range)
	SMOG Average Grade Level (Range)	Fry Method Average Grade Level (Range)	Average		
1	11.6 (11–12)	10.0 (9–11)	10.8	33.8% (11.4–65.6)	71.7% (66.7–77.8)
2	11.4 (11–12)	10.0 (8–11)	10.7	31.9% (10.6–65.6)	67.2% (61.1–80.6)
3	8.6 (8–10)	6.3 (6–8)	7.5	50.9% (28.8–81.8)	82.2% (72.2–91.7)
4	10.3 (9–11)	8.6 (7–10)	9.5	27.0% (7.8–68.8)	46.1% (38.9–63.9)
5	16.0 (14–17)	16.6 (15–17)	16.3	16.1% (0–41.7)	80.5% (72.2–91.7)
6	11.6 (11–12)	11.0 (10–11)	11.3	38.6% (24.2–67.5)	50.0% (38.9–66.7)
7	11.6 (11–12)	11.0 (9–11)	11.3	26.4% (16.7–52.8)	66.1% (47.2–77.8)
8	9.0 (9)	7.6 (6–8)	8.3	47.1% (33.3–78.6)	82.7% (75.0–91.7)
9	12.0 (11–13)	10.6 (10–12)	11.3	28.6% (15.2–57.5)	63.3% (38.9–75.0)
10	8.6 (8–10)	7.3 (7–8)	8.0	50.7% (37.9–80.0)	38.8% (30.6–52.8)
11	13.3 (12–14)	15.6 (12–17)	14.5	26.6% (18.2–61.8)	51.1% (36.1–66.7)
12	9.6 (9–10)	6.6 (6–7)	8.2	43.4% (21.2–82.5)	54.4% (50.0–61.1)
13	9.6 (9–12)	8.3 (7–9)	9.0	55.2% (43.3–80.0)	60.5% (52.8–66.7)
14	14.6 (13–16)	17.0 (14–17)	15.8	14.0% (1.5–34.4)	63.8% (44.4–83.3)
15	10.3 (10–11)	10.0 (9–11)	10.2	33.6% (23.8–64.7)	88.3% (80.6–97.2)
16	9.6 (9–13)	8.3 (6–10)	9.0	51.4% (38.1–78.6)	28.5% (22.2–33.3)
17	10.6 (10–12)	9.3 (9–10)	10.0	22.8% (14.3–42.1)	79.4% (75.0–83.3)
18	15.6 (15–18)	14.0 (12–17)	14.8	21.4% (12.1–44.4)	65.5% (47.2–80.6)
19	8.3 (7–9)	6.6 (6–7)	7.5	59.2% (42.9–81.0)	65.3% (50.0–80.6)
20	9.3 (8–10)	7.3 (7–8)	8.3	50.4% (39.7–75.0)	45.0% (33.3–61.1)
21	9.0 (8–10)	5.8 (4–7)	7.4	56.7% (42.9–85.0)	46.6% (33.3–58.3)
Overall Average (Range)	11.0 (8.3–16.0)	9.9 (5.8–17.0)	10.5 (7.4–16.3)	37.4% (14.0–59.2)	64.9% (28.5–88.3)

SMOG = Simplified Measure of Gobbledygook

(70% to 100%). The average content score across the five raters was 64.9% (range: 28.5 to 88.3%). Of the 12 content items assessed, five were most often absent or not well explained (ie, received the lowest content scores). These were two types of HPV, effects of HPV on pregnancy, treatment for HPV, skin-to-skin transmission of HPV, and condoms and HPV. The most commonly included educational messages were HPV may cause Pap test abnormalities, HPV may cause cervical cancer, HPV is sexually transmitted, and HPV is a virus.

Discussion

Based on this evaluation, in general, readability levels of selected HPV educational materials were too high, materials were not suitable, and the HPV content was marginal. The main reason for the high readability levels of the materials was the frequent use of medical terminology. Often, the medical terms were not explained in “layperson” or easy-to-understand terms (ie, “plain language”). The materials with the worst readability levels were not written in plain language and unnecessarily used polysyllabic words.

An association between readability and HPV content was observed: materials with high HPV content scores had poorer reading grade levels, and materials with low HPV content scores had better reading grade levels.

The reasons for the low suitability scores can be explained across the six SAM factors. First, the content of these materials lacked clear purpose, ie, it was too limited in explanation or too broad in scope, lacking appropriate detail. A summary paragraph to reinforce important “take home” messages was missing in the majority of materials. Second, the literacy demands of most of the materials were great (>10th grade reading level). Third, the graphics (when applicable) seemed out of place or irrelevant to the content. Fourth, the layout of the materials was not conducive to learning, and the overall design was not appealing. Fifth, the materials lacked learning stimulation and motivational aspects, as few focused on behavior and/or action-oriented steps for the reader to take. With regard to HPV-related behavior, these materials should have included information about regular Pap test screening, HPV testing, timely follow-up care for abnormal test results, and future risk reduction. Sixth, cultural appropriateness of these materials was

poor based on the guidelines set forth by Doak et al³⁷ for evaluating cultural appropriateness.

The reviewed materials also scored poorly on HPV content. Past and recent research has identified important HPV information for patients.^{27,29,38-40} Only four of the materials evaluated contained more than nine of the HPV content items included in this evaluation; most of the materials addressed at least seven of the content items. When information on HPV was presented, the materials included unexplained medical terminology. Nonspecific, general information in the materials could be confusing and contribute to misinformation and misunderstanding. Discussions on the effect of HPV on future fertility and pregnancy, transmission of HPV, and prevention methods were often missing, underdeveloped, or misleading. Finally, most materials included information recommending condoms as a prevention method for HPV. Although condoms have been shown to protect against other STIs, human immunodeficiency virus, and cervical cancer, the effect of condom use on HPV transmission is unknown.

Practical Implications

Findings from this evaluation suggest that the selected HPV educational materials should be revised for readability, suitability, and HPV content. Before disseminating existing HPV educational materials, health professionals should check the appropriateness of the material with regard to readability, the use of unexplained medical terminology, suitability, and HPV content for their patient population. When developing new materials, health professionals should extensively involve the target audience to maximize linguistic and cultural appropriateness and thereby increase the utility of the educational material. Revision of existing materials and creation of new should incorporate adequate HPV content while preserving readability and using plain language. Further, specific educational materials may need to be developed for low-risk and high-risk types of HPV to relay important educational messages. These strategies can assist with greater understanding of genital HPV infection and promote adherence to recommended health care among patients and health information seekers.

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Appendix

HPV Educational Materials Evaluated for the Study (in Alphabetical Order by Publisher)

- American Academy of Family Physicians. *Pap Smears: What They Are and What the Results Mean* (2000).
- American Academy of Family Physicians. *STDs: Common Symptoms and Tips on Prevention* (2000).
- American College of Obstetricians and Gynecologists. *Human Papillomavirus (HPV) Infection* (1999).
- American Social Health Association. *Abnormal Pap Smears* (October 2001).
- American Social Health Association. *HPV and Cervical Cancer Screening* (April 2001).
- American Social Health Association. *A Practical Guide for the Tongue-Tied: How to Talk With Your Health Care Provider About HPV and STDs* (1998).
- American Social Health Association. *Some Questions and Answers About HPV and Genital Warts* (August 2000).
- American Society for Colposcopy and Cervical Pathology. *Genital Warts* (2001).
- American Society for Colposcopy and Cervical Pathology. *Human Papillomavirus (HPV)* (2001).
- Channing Bete. *Genital Warts and HPVs: What You Need to Know* (1995; revised 2000).
- Digene Corporation. *Answers to Your Questions About HPV Testing* (2002).
- ETR Associates. *HPV & Cervical Cancer* (2001).
- Kaiser Family Foundation. *Human Papillomavirus (HPV) and Cervical Cancer* (November 2001).
- Krames. *HPV: Understanding This Common Virus* (2001).
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- Planned Parenthood Federation of American. *HPV and Cervical Cancer: Questions and Answers* (June 2002).
- Pritchett & Hull Associates. *STDs: HPV and Genital Warts* (2002).
- South Carolina Department of Health and Environmental Control. *What Kind of Problem Do I Have? Genital Warts* (April 2000).