

Psychosocial and Educational Services For Female College Students with Genital Human Papillomavirus Infection

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Context: *College-age women have a high risk of acquiring human papillomavirus (HPV) infection, which may have substantial psychosocial and physical effects. Young women who become infected need information and support from health care professionals, but little is known about providers' attitudes toward or provision of interventions for helping women cope with HPV.*

Methods: *A survey of 73 nurse practitioners and 70 physicians in college-based health clinics explored their perceptions of the need for psychosocial and educational interventions and their practices regarding such services for HPV patients. Analysis of variance and chi-square testing were used to examine differences by providers' type and gender.*

Results: *At least 86% of providers agree that HPV infection has a variety of psychosocial effects on young women, but only 54% spend at least 10 minutes providing education and counseling to all of their HPV patients. Roughly 80–90% routinely take a sexual history, explain the potential of HPV recurrence and discuss the risk of cancer with HPV patients; however, fewer than half always offer a variety of other interventions that could help patients cope with the diagnosis and promote preventive behaviors. Female providers are more aware of the psychosocial impact of HPV and the need for support than are male providers. However, nurse practitioners provide counseling and educational interventions more frequently than do physicians, even when gender is controlled for.*

Conclusions: *College-based health providers need to improve the content of the counseling and education they offer to women with HPV, as well as the consistency with which they deliver those interventions. When they are unable to provide services, they should be able to refer patients elsewhere.*

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College-age women are among those at greatest risk of acquiring human papillomavirus (HPV) genital infection. Results of studies conducted in college health centers have suggested that 10–46% of female students (with a mean age of 20–22) harbor cervical HPV infection.¹ These young women also have an increased risk of developing cervical dysplasia, precancerous cell changes associated with this infection.² One large study analyzing Pap smear results among women of all ages found that the highest rate of early dysplasia was among 20–24-year-olds.³

A number of behavioral and psychosocial factors increase college-age women's risk of HPV. Risk factors associated with the disease include smoking, using oral contraceptives, having multiple sexual partners and having partners with a history of HPV.⁴ Studies of sexually active female college students have revealed that they not only have a high prevalence of these factors, but also lack awareness about HPV infection, engage in a high level of unprotected sexual activity and do not obtain adequate preventive gynecologic care (Pap smears).⁵ Furthermore, these young women often

believe that they are at low risk of becoming infected with HPV; in one analysis, students perceived themselves as having a lower risk for sexually transmitted diseases (STDs) than their college peers, but an equal risk for the common cold.⁶

Several management challenges exacerbate the problem of HPV infection among college-age women. The infection and its associated cervical dysplasia can be difficult to diagnose and are not always detectable by a Pap smear.⁷ When the disease is asymptomatic and undiagnosed, an infected individual can transmit the virus unknowingly; furthermore, the longer a diagnosis is delayed, the greater the risks of dysplasia and its potentially serious sequelae. When the infection is with a strain of HPV that causes warts, multiple topical treatments or surgery may remove them, but these remedies may be time-consuming and uncomfortable, and the warts may recur.⁸ Thus, regular follow-up is essential to monitor recurrence or progression of the infection or dysplasia, and this may lead to compliance problems, especially among patients with asymptomatic infections.⁹

Because a diagnosis of HPV can cause much confusion and distress for a young

woman, infected women may need a great deal of information and support from their health care providers. However, in a large study of patients with HPV, a majority rated their provider as only fair or poor; their greatest dissatisfaction stemmed from the provider's failure to offer advice on emotional issues, to ask questions about sexual practices, to supply written information and to provide a referral for more support.¹⁰ The study also found that patients experienced significant negative emotions related to their HPV diagnosis.

Other research has documented that HPV has not only physical but also emotional and behavioral implications. Following the diagnosis and treatment of HPV or an abnormal Pap smear, patients reported negative effects on their interest in sex and on their relationship with their partner.¹¹ Fear of cervical cancer is another area of concern for patients.¹²

The analyses described here are based on a survey of providers who offer HPV services at college health centers. As reported elsewhere, the findings suggested that providers had a basic knowledge of the disease's epidemiology, treatment and diagnosis.¹³ However, they generally reported a more aggressive approach to HPV management than the Centers for Disease Control and Prevention's STD guidelines call for.¹⁴ In this article, we present findings related to providers' attitudes toward and provision of psychosocial and educational HPV interventions.

Methods

The Sample

Using the American College Health Association's mailing list and a directory of U.S. colleges,¹⁵ we identified 292 health centers located on college campuses with an undergraduate population of at least 3,400 students. We sent each center a survey questionnaire with a cover letter asking that it be completed by a provider who had diagnosed and treated HPV infection at the center. What type of provider would

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Table 1. Percentage distribution of college-based health providers, by level of agreement with statements about interventions for and psychosocial problems of women with human papillomavirus (HPV) infection (N=143)

Statement	Strongly agree	Agree	Dis-agree	Strongly disagree	Total
It is important to counsel all female patients with HPV on the carcinogenic potential of HPV.	49.0	49.7	1.4	0.0	100.0
Emotional support for patients with HPV infection is very important.*, †	56.3	43.7	0.0	0.0	100.0
A diagnosis of HPV has psychosocial effects on a female patient's:					
Self-concept*	54.9	44.4	0.7	0.0	100.0
Body image*, †	55.6	42.3	2.1	0.0	100.0
Sexuality*, †	55.3	40.4	4.3	0.0	100.0
Sexual functioning*, †	47.5	43.3	7.8	1.4	100.0
My female patients with HPV express:					
Anger*	52.9	42.9	4.3	0.0	100.0
Guilt*	52.5	42.6	5.0	0.0	100.0
Blame	54.3	40.7	5.0	0.0	100.0
Fear of cancer*	37.6	48.2	13.5	0.7	100.0
Fear of future relationships*, †	51.1	41.8	7.1	0.0	100.0
Fear of uncertainty*, †	46.1	48.9	5.0	0.0	100.0
Not much concern*, †	3.6	20.3	47.8	28.3	100.0

*Nurse practitioners reported significantly higher frequencies of strong agreement than physicians (p<.05). †Female providers reported significantly higher frequencies of strong agreement than male providers (p<.05). Note: Not all respondents answered each item.

complete the survey and how the health center would choose the respondent were unknown. Participants were informed that their responses would be anonymous; implicit informed consent was assumed by the return of completed surveys.

A total of 163 surveys were returned, of which 154 (from 37 states) were eligible for inclusion in our analyses. Of these, 11 surveys were completed by physician assistants; we eliminated this group because of its small size. The final sample thus consisted of 143 respondents (for a 49% response rate)—73 nurse practitioners and 70 physicians.

Respondents' most frequently reported area of specialty was family practice (36%), followed by obstetrics and gynecology (34%), adult medicine (17%), pediatrics (5%) and other areas (8%). Seventy-three percent of respondents were female, including all of the nurse practitioners and 44% of the physicians. In all, 90% of providers had attended an HPV educational program within the past five years.

Survey and Analyses

The survey was developed on the basis of an extensive review of current literature, national management guidelines and con-

*The term "challenging" was not defined for the providers; the intent of the question was to gain information on the difficult aspects of managing HPV. Responses indicated that providers did indeed interpret "challenging" to mean difficult or frustrating, because of institutional or personal factors.

sultations with health providers who treat HPV infection; it was reviewed and approved by the Yale University School of Nursing Human Subjects Committee. The questionnaire contained five sections: basic demographic questions; true-false questions about HPV; statements exploring the providers' attitudes about controversial aspects of HPV management; questions on the frequency of patient education and counseling interventions; and questions on clinical management practices.

In the section on attitudes, a cluster variable composed of 13 statements was formed to assess providers' views of the psychosocial impact of HPV infection on young women and perceptions regarding the importance of counseling young women with HPV. Respondents indicated their level of agreement with each statement by scoring it on a Likert scale ranging from one (signifying strong disagreement) to four (strong agreement). Thus, the higher the score on this cluster, the stronger the agreement that HPV infection has a significant psychosocial impact on young women and the stronger the agreement that it is important to counsel HPV patients.

The frequency of counseling and educational interventions was measured in a section asking respondents the proportion of their HPV patients to whom they provide each of 11 interventions; the interventions were selected because of their potential to affect patient care. Responses were scored on a scale of one (indicating that the provider does not offer the intervention to any HPV patients) to five (offers to all HPV patients), and the mean score was calculated for each intervention. To examine the implementation of all 11 interventions in an aggregate form, we created a cluster variable, with a mean score based on the individual means.

To assess clinical management practices, we asked providers how much time they regularly spend with a patient on counseling and education interventions; response choices were "at least five minutes" and "at least ten minutes." In addition, an open-ended question asked providers to

describe the most challenging aspects of managing HPV infection in their college setting.* Responses were grouped into categories suggested by the literature review and discussions with providers.

Differences in means by provider type and provider's age and gender were tested using analysis of variance. Chi-square tests were used to further clarify associations and the distribution of responses by type and gender of provider. As this was a pilot descriptive survey, reliability and validity were not determined for this questionnaire.

Results

Counseling Attitudes

The percentage distribution of scores for each item provides one perspective on respondents' attitudes (Table 1). For 12 of the 13 items, at least 86% of providers either agreed or strongly agreed. The one statement eliciting general disagreement (76% of respondents) was that patients with HPV were "not very concerned" about their diagnosis.

Results of chi-square analysis revealed that for 11 of the attitude items, nurse practitioners were significantly more likely to strongly agree than were physicians. On seven items, female providers were significantly more likely than males to strongly agree. For example, 65% of female providers strongly agreed that emotional support for patients with HPV was very important, compared with 33% of males (not shown).

The mean score for the counseling attitude cluster variable was 3.42, indicating that providers generally agreed that counseling is important and that HPV infection has a significant psychosocial impact on young women. Nurse practitioners had a higher mean score for this cluster (3.53) than did physicians (3.46), and the differ-

Table 2. Percentage distribution of providers, by proportion of patients with HPV to whom they offer counseling and educational interventions, according to amount of time spent on these interventions

Amount of time and proportion of patients	%
At least five minutes (N=138)	
100% of patients	94.9
75% of patients	3.6
50% of patients	1.4
<50% of patients	0.0
At least 10 minutes (N=137)	
100% of patients	54.0
75% of patients	24.8
50% of patients	13.9
<50% of patients	7.3
Total	100.0

Table 3. Analysis of variance results for provision of 11 counseling and educational interventions, by source of variation

Source of variation	Mean square for model	Mean square for error	F ratio†
Provider type	2.08 (df=1)	0.20 (df=134)	10.16***
Gender	0.29 (df=1)	0.20 (df=134)	1.41
Age	0.12 (df=4)	0.20 (df=134)	0.58
Females by provider type	1.58 (df=1)	0.22 (df=102)	7.32***
Physicians by gender	0.41 (df=1)	0.20 (df=102)	2.03

*p<.01. ***p<.005. †The F ratio is calculated by dividing the variation between groups by the variation within groups, as indicated by the mean squares for the model and error, respectively. An F ratio significantly greater than 1.0 indicates that differences between groups are larger than differences within groups; therefore, the differences are likely due to variations in practices of the groups being compared. Note: df=degrees of freedom.

ence was statistically significant (p<.05).

In analyses controlling for gender, nurse practitioners had a somewhat higher mean for the cluster attitude variable (3.53) than did female physicians (3.37), but the difference was only marginally significant (p<.10). Only one individual attitude item differed significantly between these groups: Some 73% of nurse practitioners agreed that emotional support for patients with HPV is very important, compared with 47% of female physicians ($\chi^2=6.29$, p<.02). Female physicians did not differ significantly from male physicians on the individual attitude items. Interaction effects could not be tested because cell sizes were too small, but it appears that a combination of factors, rather than gender or type of provider independently, affects attitudes.

Because smoking is associated with the risk of cervical neoplasia, we also asked two questions about providers' attitudes toward smoking interventions. Virtually all providers (96%) agreed that smoking increases a patient's risk of cervical neoplasia; the rest did not know. A significantly higher proportion of nurse practitioners (54%) than of physicians (36%) strongly agreed ($\chi^2=3.84$, p<.05); a similar difference was found between female (53%) and male (25%) providers ($\chi^2=7.33$, p<.01). No differences were found between nurse practitioners and female physicians.

Likewise, 99% of providers expressed some agreement that patients with HPV infection should be advised to stop or limit smoking. Again, nurse practitioners were significantly more likely (57%) than physicians (38%) to agree strongly with this statement ($\chi^2=4.84$, p<.05), and female providers expressed strong agreement more frequently (58%) than did males (22%) ($\chi^2=13.67$, p<.001). Additionally, the gender difference held among physicians; strong agreement with this statement was

significantly more common among female physicians (59%) than among male physicians (22%) ($\chi^2=9.44$, p<.005).

Provision of Counseling and Education

Overall, 95% of respondents reported spending at least five minutes providing counseling and educational interventions to all of their patients with HPV (Table 2). However, only 54% reported spending at least 10 minutes on these interventions with all of their HPV patients; this proportion was significantly higher ($\chi^2=8.46$, p<.05) among nurse practitioners than among physicians (64% vs. 42%—not shown).

For the sample as a whole, the mean score of the cluster variable for the reported frequency of provision of 11 counseling and educational interventions was 3.7. This suggests that on average, providers consistently offer some or all of these interventions to 50–75% of their patients with HPV. The mean was significantly higher among nurse practitioners (3.9) than among physicians as a whole (3.5) or female physicians (3.6). No differences were found between male and female physicians, suggesting that the type of provider, and not the provider's gender, influences the frequency of counseling and educational interventions provided to patients.

The results of the analysis of variance for the mean scores of the counseling and educational interventions indicate that service provision varies significantly according to provider type; this result was found both for the sample as a whole and among female providers (Table 3).

None of the 11 interventions are offered by all of the providers to all of their HPV patients (Table 4). Only two interventions—discussion of the potential for recurrence of HPV infection and discussion of the potential for malignant cell changes related to HPV infection—are routinely offered by at least 85% of providers. Some 77% of providers take a sexual history on all new HPV patients, 72% give them printed materials about the disease, 59% ask whether they smoke and 54% teach them how to do a genital self-exam. Five

interventions are routinely offered by fewer than half of providers; three of these—role-playing about disclosing one's HPV status to a partner, referral to support groups and joint counseling with the patient's partner—are routinely offered by no more than 5% of providers.

Compared with physicians, nurse practitioners reported a higher frequency of routinely providing five interventions: discussing the potential of HPV recurrence; instructing patients in genital self-exams; discussing patients' concerns related to body image and self-esteem; discussing patients' feelings of anger, guilt and blame; and giving out printed materials. Notably, however, only 55–75% of nurse practitioners reported providing three of these interventions to all of their patients with HPV (not shown). Nurse practitioners reported including two interventions—instruction in genital self-exam and provision of printed materials—with significantly greater frequency than female physicians.

Management Challenges

In response to the open-ended question asking providers to describe the most challenging aspects of managing HPV infection, the largest proportion of respondents (33%) said addressing psychosocial issues was the most difficult (Table 5, page 140). The next most common categories of responses pertained to the difficulty of promoting prevention or behavioral change

Table 4. Percentage distribution of providers, by proportion of patients with HPV to whom they offer counseling and educational interventions, according to intervention (N=140)

Intervention	% of patients					Total
	100	75	50	1–50	0	
Take a sexual history on new HPV patients	77.1	13.6	4.3	3.6	1.4	100.0
Inquire about smoking status	59.3	15.0	10.7	7.1	7.9	100.0
Discuss potential of HPV recurrence*	89.4	8.5	0.7	1.4	0.0	100.0
Discuss potential for malignant changes	85.2	12.7	0.7	1.4	0.0	100.0
Instruct on genital self-exams*, †	53.9	24.8	12.8	5.0	3.5	100.0
Discuss issues of body image/self-esteem*, ‡	40.4	31.9	14.9	9.2	3.5	100.0
Discuss feelings of anger, guilt and blame*, †, §	47.9	33.1	8.5	7.0	3.5	100.0
Give out printed materials*, †, ‡	71.8	19.7	2.8	4.9	0.7	100.0
Role-play†	5.0	5.7	10.6	25.5	53.2	100.0
Refer to support group	1.4	6.4	12.8	24.1	55.3	100.0
Do joint counseling with partner	2.1	4.3	14.9	53.9	24.8	100.0

*Nurse practitioners reported the provision of this intervention to 100% of their patients with significantly greater frequency than physicians (p<.05). †Nurse practitioners reported the provision of this intervention to 100% of their patients with significantly greater frequency than female physicians (p<.005). ‡Female providers reported the provision of this intervention to 100% of their patients with significantly greater frequency than male providers (p<.05). §Female physicians reported the provision of this intervention to 100% of their patients with significantly greater frequency than male physicians (p<.05).

Table 5. Percentage of providers, by issues they consider the most challenging aspects of managing HPV infection (N=119)

Issue	%
Addressing psychosocial aspects of HPV	32.8
Promoting prevention/behavioral change	25.2
Improving patient compliance/follow-up	24.4
Providing HPV education	19.3
Provider/professional issues	18.5
Addressing patient denial/feelings of invincibility	12.6
Patients' financial concerns related to HPV diagnosis and treatment	10.9
Sexual partner issues	8.4

(25%) and improving patients' compliance with treatment and follow-up care (24%). Providers cited their patients' low level of knowledge of HPV, high-risk behaviors and feelings of "invincibility" as contributing to these challenges. A substantial proportion of providers also mentioned HPV educational efforts (19%) and provider or professional issues such as time constraints, lack of resources and burnout due to large numbers of patients with HPV (19%). Other responses related to patients' financial concerns and issues with sexual partners.

Discussion

The results of our study suggest that providers generally perceive HPV infection as having a significant psychosocial impact on college-age women and agree that it is important to provide infected women with emotional support and education. Nonetheless, the extent to which they provide pertinent interventions is often limited.

Providers expressed overwhelming agreement that HPV infection results in feelings of anger, guilt, blame and fear in their patients; they also indicated a high level of agreement that the disease raises concerns about self-image, sexuality and sexual functioning among young women. Furthermore, the infection's emotional and psychosocial impact was the most frequently reported challenge of HPV management. When viewed from this context, it is somewhat disconcerting that in practice, fewer than half of providers discuss these issues with all of their patients.

Consistent with findings elsewhere in the literature,¹⁶ providers reported a high level of misinformation held by their patients regarding HPV. Therefore, it is not surprising that patient behavioral change, compliance and education were among the most commonly reported challenges of HPV management. However, our findings suggest that providers often miss opportunities to offer patient education.

While providers are generally aware that smoking raises the risk of cervical neoplasia and agree that HPV patients should be advised to stop or limit smoking, only three-fifths consistently inquire about their HPV patients' smoking habits. Without inquiry about smoking habits, prevention counseling cannot occur.

Also of concern is the finding that only three-quarters of providers take a sexual history on all their new HPV patients. Earlier studies, too, have documented low rates of sexual history-taking.¹⁷ The sexual history can be used as a forum within which further discussion of safer sexual practices and partner issues can occur; thus, it is a potentially critical intervention point that is routinely missed.

Genital self-exams are another important component of patient education, since these can detect early recurrence, enabling patients to seek prompt treatment and thereby promoting a sense of greater personal control. However, only about half of providers report instructing all of their patients with HPV on genital self-exams.

An encouraging finding was that providers generally agree with the need to discuss the oncogenic potential of HPV with patients, and 85% of them do so with all of their patients. Such information may increase the likelihood that patients will obtain follow-up Pap smears, a critical component of HPV management and a challenge frequently cited by providers.¹⁸

Despite providers' concerns about addressing the psychosocial effects of HPV and encouraging behavioral change, few routinely provide the three interventions that could potentially have the greatest impact in these areas: role-playing, referring patients to a support group and providing joint counseling to a patient and her partner. Support groups can be a useful source of information and peer support for young women who may feel alienated as a result of their HPV diagnosis; the successful use of an HPV support group run by a nurse practitioner on a college campus has been documented.¹⁹ Role-playing and joint counseling can help empower young women with HPV and can help them develop the skills they need to discuss their condition with their partner and take preventive measures.

Our study could not determine the reasons for the low frequency of these interventions. Institutional factors such as time or resource constraints, or the roles or workloads of particular health providers, may preclude these interventions. Additionally, individual providers may lack the personal education, comfort level or in-

terest to address necessary issues. Patients themselves may be too embarrassed to discuss them with providers. However, when health care professionals cannot offer needed information and support, they should refer patients to other sources. Providers should become aware of available resources and perhaps collaborate with campus counseling services or with local off-campus programs.

Interestingly, nurse practitioners and female providers in general expressed stronger agreement than male providers with nearly all of the attitude items related to the psychosocial impact of HPV infection and the importance of counseling. When we controlled for gender, attitudes did not differ between nurse practitioners and female physicians, suggesting that the provider's gender may affect these attitudes. However, attitudes between female and male physicians did not significantly differ. Thus, a combination of factors probably influence attitudes.

That female providers, in general, expressed stronger positive attitudes toward counseling than males suggests that their experiences with patients may differ. Perhaps female patients feel more comfortable disclosing their feelings and concerns to female providers. Furthermore, female providers may be more sensitive than males to the implications of living with this infection and may have a better understanding of its psychosocial impact.

Overall, female providers reported offering interventions more frequently than male providers. However, when gender was controlled for, nurse practitioners reported providing counseling interventions with greater frequency than did female physicians. This finding may reflect that nurse practitioners' reported strong attitudes about the importance of counseling translate to a greater professional focus on counseling. However, time and role constraints of physicians in college health centers also may preclude their participation in such interventions.

Further study with a larger sample is needed to clarify the effects of providers' characteristics on their counseling attitudes and practices. A qualitative study exploring why providers choose the practices they do and their perceived constraints on these practices would be helpful in further examining these issues.

Our survey was intended as a descriptive pilot study. Its purpose was to examine different management practices related to HPV infection and identify areas of care that may be in need of further research. Certain limitations exist in a sur-

vey design such as this. Although the content and scoring scales were based on comprehensive research and faculty review, the instrument was of the investigators' own design. We have not conducted factor analysis or measured the questionnaire's reliability and validity. Thus, survey items may be subject to misinterpretation or varied interpretation by respondents.

Furthermore, our results are based on self-reported responses, which are subject to variations in respondents' honesty, memory and perceptions. When providers are asked about attitudes and management practices that may reflect their competence or integrity, we cannot know if they respond in terms of their actual practice or in terms of what they perceive as ideal or expected.

Given that the questionnaire's reliability and validity are not known, the study's generalizability is limited. Since we did not know how the respondent at each health center was selected, it is not possible to assess all possible differences between providers. For example, the role and scope of practice may differ between physicians and nurse practitioners; consequently, their management practices may differ accordingly. Lastly, differences between groups, such as by type or gender of provider, should be interpreted cautiously, because the interaction and possible confounding effects between the groups could not be tested.

Our findings demonstrate that it is essential for college-based health providers to examine the content of their counseling and educational practices related to HPV infection, and to close the gap between the interventions that are necessary and those that they are actually providing. Future research regarding patients' experiences and perceptions of care could identify other areas of HPV services that need to be addressed. As this potentially chronic and serious disease becomes increasingly common among young women, the provision of effective coping and preventive skills

related to HPV infection must be a priority during every encounter between a patient and a health care professional.

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