
Human Papillomavirus and Anorectal Carcinoma Knowledge in Men Who Have Sex With Men

Christopher W. Blackwell, PhD, ARNP, ANP-BC, CNE
Candace Eden, MSN, RN, NE-BC, LHRM

Human papillomavirus (HPV) infection is a precursor to the development of anorectal carcinoma. Studies have indicated that men who have sex with men (MSM) have significantly higher rates of HPV and HIV than their heterosexual counterparts and are at greater risk for anorectal carcinoma. This article presents findings from a descriptive study to assess knowledge of HPV, anorectal carcinoma, and anorectal screening in a sample of MSM in Orlando, FL. The 89 participants demonstrated knowledge deficits. The average score on knowledge items was only 38% correct. Of the 49 participants who had heard of anal Papanicolaou (Pap) smears, only 5 (10.2%) discussed screening with a physician, while 8 (16.3%) had discussed it with a nurse, and 16 (32.7%) with another health care professional. Findings support the need for community outreach efforts to promote knowledge and the need for discussion with providers regarding HPV and anorectal carcinoma in this vulnerable population.

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Human papillomavirus (HPV)-associated anal cancer is increasing in prevalence among men who have sex with men (MSM) and HIV-infected MSM (Chin-Hong et al., 2004). Although epidemiologic

data have suggested that the prevalence of anorectal dysplasia and carcinoma in this population were similar to that of dysplasia and cancer of the cervix in women before the widespread implementation of cervical Papanicolaou (Pap) screenings (Oon & Winter, 2010), more recent studies have indicated that anal cancer is now more common than cervical cancer in women (Goldstone & Moshier, 2010).

While many studies have demonstrated higher prevalence rates of HPV and anorectal carcinoma in MSM, very little inquiry has been devoted to assessing the knowledge level of MSM regarding HPV, anorectal carcinoma, and anorectal carcinoma screening. This article presents findings from a descriptive study designed to assess knowledge of MSM regarding these topics. The influence of clinician-provided information was also assessed. To better understand the clinical significance of the problem, a review of the pathophysiologic relationship between HPV and anorectal carcinoma is presented along with epidemiologic data on HPV and anorectal carcinoma in MSM.

Christopher W. Blackwell, PhD, ARNP, ANP-BC, CNE, is an Assistant Professor, College of Nursing, University of Central Florida, Orlando, Florida. Candace Eden, MSN, RN, NE-BC, LHRM, is a Doctoral Candidate, College of Nursing, University of Central Florida, Orlando, Florida, USA.

Literature Review

Knowledge About HPV in MSM

HPV is one of the most highly transmissible sexual diseases of this century (Nandwani, 2010; Sandfort & Pleasant, 2009). In the United States, men and women have a 75% chance of acquiring HPV within their lifetimes (Jones & Cook, 2008). Although sexual orientation was not specified, Jones and Cook (2008) found that college men between 20-24 years of age had the highest incidence of genital warts, 90% of which were attributable to HPV infection. The overall prevalence of HPV infection among heterosexual, homosexual, and bisexual men combined has been demonstrated to be 50.5% nationally (Giuliano, Anic, & Nyitray, 2010). Also of significance, HPV infection can be cleared and, in most cases, does not lead to anal cancer. In fact, research conducted by Giuliano and colleagues (2010) demonstrated a median clearance rate of 5.6 months in HPV-infected men, with 75% of infections clearing within 12 months. While much of the emphasis in the literature on HPV has been on women and the link to cervical cancer, there has recently been an increase in the body of science regarding the prevalence of HPV infection in males, especially MSM (Chin-Hong et al., 2004; Lindsey, DeCristofaro, & James, 2009).

Studies of men's awareness, knowledge, and beliefs about HPV have typically addressed how potential exposure could impact their heterosexual partners (Sandfort & Pleasant, 2009). Some studies have demonstrated that an increase in knowledge regarding HPV is tied to men's intentions to reduce the number of sexual partners, use a condom during sex, and be vaccinated against HPV (Nandwani, 2010). Men do not generally perceive themselves to be susceptible to HPV and have indicated they have a lower perception of risk for contracting sexually transmitted infections (STIs) in risky sexual situations (Mehrotra, Noar, Zimmerman, & Palmgreen, 2009). Men have also consistently demonstrated a lower level of knowledge about HPV than women (Liddon, Hood, Wynn, & Markowitz, 2010; Sandfort & Pleasant, 2009). Few studies have attempted to assess knowledge of MSM regarding HPV and

their potential to transmit this STI (Bertram & Niederhauser, 2008).

The knowledge levels of MSM regarding HPV infection and its impact have been found to be limited (Pitts, Fox, Willis, & Anderson, 2007). Gay men are more aware of HPV and the need for anal Pap testing and are more likely to have disclosed their sexual orientation to their providers than bisexual men (Reed, Reiter, Smith, Palefsky, & Brewer, 2010). HIV status appears to have a small positive impact on awareness and beliefs about HPV in MSM (Pitts et al., 2007; Reed et al., 2010). Although still quite low, HIV-infected MSM were found to have slightly higher knowledge levels than their uninfected counterparts (Pitts et al., 2007).

It is difficult for men to find information about HPV. Most media campaigns have been targeted to young women, and those focus on vaccination against HPV (Sandfort & Pleasant, 2009). Recent campaigns on television and in print have addressed vaccination in male adolescents and young men (i.e., ages 9-26) to prevent genital warts but do not mention anal cancer or its prevalence in MSM. This is likely because vaccine use to prevent anal cancer in men was only approved on December 22, 2010 (Food and Drug Administration, 2010).

Information on the Internet from public agencies such as the National Cancer Institute and the Centers for Disease Control and Prevention (CDC) regarding MSM and HPV is somewhat limited. The CDC provides some facts addressing the impact of HPV on gay and bisexual men but has much more information available concerning women and HPV (CDC, 2010b; CDC, 2010c). The Advisory Committee on Immunization Practices (ACIP) guidelines have added information that MSM have a high incidence of HPV types 6, 11, 16, and 18, but they have been cautious in recommending vaccination in this group (CDC, 2010a). The lack of available information from public health resources regarding prevention strategies in men may be partially due to complex decisions about whether or not to employ large-scale HPV vaccination programs in male and female adolescents (Liddon et al., 2010). In addition, health care providers have not completely resolved the cost effectiveness and utility of vaccination in males. Interruption of the transmission of HPV requires

that MSM know about the infection, their susceptibility to acquiring it, and the availability of prevention strategies (Armstrong, 2010; Sandfort & Pleasant, 2009).

Knowledge of MSM Regarding Screening

Because men who have HPV do not always have symptoms of the disease, the absence of visible genital lesions during a physical examination may preclude an accurate diagnosis (Bertram & Niederhauser, 2008; Oon & Winter, 2010). High rates of anal cancer have recently been observed in gay and bisexual men in whom high rates of risky sexual behavior (e.g., receptive anal intercourse with multiple partners, smoking, drug use) along with concurrent HPV infection were also prevalent (Lindsey et al., 2009; Reed et al., 2010). Most studies that have surveyed parents and health care providers about the decision to vaccinate against HPV found poor communication regarding the benefits of detection and prevention strategies for men (Liddon et al., 2010). Research has indicated that HIV-infected gay and bisexual men were more likely to understand the purpose of an anal Pap test than heterosexual men. They were also more likely to have had an anal Pap smear and were more worried about an anal cancer diagnosis (Reed et al., 2010).

There are no evidence-based recommendations regarding who should and should not be screened (Blackwell, 2008), despite recommendations that health care providers assess knowledge about anorectal testing in MSM. Reed and colleagues (2010) assessed MSM participants' knowledge about Pap testing and if they had ever been screened, what barriers might prevent them from obtaining Pap testing in the future, and whom they thought should receive regular anal Pap testing. The men in the study who were HIV-infected were more likely to be aware of anorectal testing than uninfected men, and gay men were more willing than bisexual men to have anal Pap testing in the future. Although there is evidence that MSM who are HIV-infected are the most at-risk group for HPV infection and anorectal cancer, few studies have assessed this group's knowledge and awareness about anorectal screening and the benefits of this preventive care (Goldstone & Moshier, 2010).

Information regarding HPV infection and the potential to prevent genital warts and genital cancers has been evident in the media due to the release of a preventive vaccine in the last 5 years (Sandfort & Pleasant, 2009). In addition, newer data have highlighted the relationship between HPV infection and various cancers of the mouth, head, and neck (Marur, D'Souza, Westra, & Forastiere, 2010; Nandwani, 2010). This information might have a positive effect on vaccination implementation and heighten interest in health care consumers regarding the pathophysiology of HPV and its related cancers. Due to the increase in information surrounding HPV, providers are becoming more aware of the need to screen for STIs in sexually active MSM (Oon & Winter, 2010). The CDC now recommends annual testing for syphilis, gonorrhea, chlamydia, and HIV in this population (CDC, 2010b).

Studies that have assessed the intent of MSM to be screened for STIs have produced varied results (Mimiaga et al., 2009; Reed et al., 2010). In one study, 34% of Black MSM in Massachusetts cited barriers to screening that included time constraints, thinking they or their partners were "clean," and, more importantly, fear of knowing the test result (Mimiaga et al., 2009). In another study, more than half of HIV-infected gay and bisexual men were willing to undergo screening and to pay for it without benefit of insurance (Reed et al., 2010). Although MSM are more likely to be uninsured compared to their heterosexual counterparts, they are also more likely to have regular yearly check-ups that provide a great opportunity for recommended HPV screening (Buchmueller & Carpenter, 2010). Studies on screening MSM have reflected current provider practice standards for testing male patients who engage in receptive anal intercourse, but findings have been inconsistent (Goldstone & Moshier, 2010). Assessing providers' intents regarding STI screening may yield important information to assist in targeting prevention interventions in this population (Abbas, Yang, & Fakhri, 2010).

Health Care Provider Issues in Assessment and Prevention of HPV

The influence of health care providers on their patients' decisions regarding acceptance of a vaccine

to prevent HPV is well documented in the literature (Liddon et al., 2010). Health care providers have an impact on the decisions of MSM to obtain STI and anal cancer screening and to accept prophylactic prevention strategies against potential morbidity and mortality from disease (Jones & Cook, 2008). MSM as a group are highly vulnerable to HIV acquisition; the incidence of anal cancer in men who have HIV and/or HPV is 10 times that of women (Reed et al., 2010). Prevalence data have suggested that HPV infection in MSM is as high as 50%-75% (Giuliano et al., 2010).

The EXPLORE study of HIV-uninfected MSM found no particular age of peak prevalence for HPV infection as there is for women. HPV infection was discovered in 57% of the men in the study across all age groups (Chin-Hong et al., 2004). Although the EXPLORE study and other recent research investigations have documented high rates of HPV acquisition and anal cancer in MSM, many providers still do not ask about the sexual behaviors of their male patients, provide education, or recommend appropriate Pap testing (Buchmueller & Carpenter, 2010; Pitts et al., 2007).

Presentation of symptoms such as rectal bleeding and anal pain and irritation have sometimes been diagnosed by health care providers as hemorrhoids or other nonthreatening illnesses, causing a delay in diagnosis (Lindsey et al., 2009). The high prevalence of HPV found in MSM should be enough reason to spark conversations about prevention measures and anal Pap testing (Buchmueller & Carpenter, 2010; Giuliano et al., 2010). Although the greatest opportunity to prevent HPV and its sequelae in men is before they become sexually active, targeting men who self-identify as gay or bisexual may present a challenge for health care providers (Liddon et al., 2010). Identification of high-risk groups that would benefit from recommended testing guidelines is a critically important method to decrease morbidity and mortality from HPV infection and anal cancer (Lindsey et al., 2009; Reed et al., 2010). The best way for health care providers to assess their patients' health needs is to inquire about sexual behaviors in a nonjudgmental way. If a patient states he has sex with other men, his risk for HPV should be considered in relation to his sexual history. Clinicians should provide

education, initiate open dialogue, and suggest recommended anorectal testing for patients found to be at risk (Blackwell, 2008; Lindsey et al., 2009).

Purpose of Study

The purpose of this descriptive study was to determine (a) the knowledge level of a sample of MSM regarding HPV, anorectal carcinoma, and screening, and (b) the level of knowledge obtained about these topics from health care providers. Specifically, answers to three research questions were sought:

1. What is the knowledge of MSM about HPV, anorectal carcinoma, and screening?
2. How many MSM have been screened and/or are aware of the need for anal Pap smear screening?
3. From what sources did MSM obtain information on the need for anal Pap smear screening?

Method

Methods, Sample, and Protection of Human Subjects

The study was approved by the institutional review board of the University of Central Florida. No personal identifying information was collected, and all data were kept secured in a locked research office. Sample recruitment for this study occurred over a period of approximately 4 days. Participants were recruited from events predominantly attended by gay, lesbian, bisexual, and transgender (GLBT) persons. Specifically, sampling was conducted over a 2-day period during a promotional convention held during a gay pride event and during two meetings of a university GLBT student organization. MSM who attended the events were approached by either the primary investigator or a research assistant and asked to participate. Men who agreed to participate were briefed about the purpose of the study and asked to complete a questionnaire assessing knowledge of HPV, anorectal carcinoma, and screening.

Only men who reported sexual activity with other men were asked to participate in the study. Informed consent was implied with the completion of the questionnaire. At the end of the data collection period, 89 participants had completed the survey.

In a similar study, Pitts and colleagues (2007) used the questionnaire to assess knowledge of HPV, anorectal carcinoma, and screening in an Australian sample of MSM recruited from a gay pride event. The authors of that study gave us permission to use the instrument. The instrument was designed from a previous instrument used to assess knowledge of HPV, screening, and cervical cancer in women (Pitts et al., 2007).

Participants responded to demographic questions by either writing the answers on blank lines (e.g., age, ethnicity, number of visits to primary care provider, etc.) or selecting from provided options (e.g., employment status, sexual orientation identity, HIV status). The entire survey consisted of 65 items. Thirty-eight items assessing knowledge were answered either true or false (19 items) or in Likert format (19 items ranging from 1 [*strongly disagree*] to 5 [*strongly agree*]). The instrument was previously pilot tested on 10 gay men by Pitts and colleagues (2007) to ensure readability.

Data Analysis

Data were coded and entered into a database using the Statistical Program for the Social Sciences (SPSS) 16.0. Descriptive statistics were used to assess demographic characteristics of the sample and to answer the research questions. Calculation of the number and percentage of participants who answered each item correctly was used to analyze the data on knowledge of HPV and anorectal carcinoma. Two-tailed *t*-tests were used to determine if differences existed between participants recruited from the two different data collection venues.

Results

The final sample consisted of 89 MSM, 88 of whom self-identified as either gay ($n = 85, 95.5\%$) or bisexual ($n = 3, 3.4\%$). One participant did not select a sexual orientation identification. Fifty-one

(57.3%) participants were recruited from the gay pride event, and 38 (42.7%) were recruited from the GLBT student organization. Although the mean age for participants recruited from the GLBT student organization was 21.84 ($SD = 6.29$) and the mean age of participants from the gay pride event was 39.37 ($SD = 11.82$), the age difference was not statistically significant ($t(67) = 1.21, p = .23$). The two groups in the sample were relatively homogenous with respect to other demographic variables. The average participant was 31.89 years of age, Caucasian, single, employed full-time, had completed an undergraduate degree, and reported being uninfected with HIV (see Table 1).

The first research question addressed the knowledge of MSM about HPV, anorectal carcinoma, and

Table 1. Sample Demographic Characteristics ($N = 89$)

Characteristic	<i>N</i>	<i>M</i> (<i>SD</i>)
Age	89	31.89 (13.12)
	<i>n</i>	%
Relationship status		
Single	51	57.3
Divorced/separated	3	3.4
Widowed	2	2.2
Married/living with partner	28	31.5
Other	5	5.6
Ethnicity		
White	67	75.3
Black	3	3.4
Hispanic	10	11.2
Asian	4	4.5
Other	1	1.1
Not reported	4	4.5
Education		
Grade 9	2	2.2
Grade 10	1	1.1
Vocational/trade school	20	22.5
Undergraduate	38	42.7
Graduate/postgraduate	22	24.7
Not reported	6	6.7
Sexual Orientation		
Gay	85	95.5
Bisexual	3	3.4
Not reported	1	1.1
HIV status		
HIV-infected	6	6.7
HIV-uninfected	77	86.6
Don't know	5	5.6
Not reported	1	1.1

screening. Only eight (27.6%) of the 29 items assessing knowledge about HPV, anorectal carcinoma, and screening had correct scores of 50% or more. These items were all true/false questions related to gender-associated HPV infection risk (items 15, 16, and 17), HIV-infection associated risk (item 18), treatment opportunity (item 21), screening need (items 22 and 25), and protection provided by the use of condoms (item 29). Items with the lowest percentages of correct responses were item 23: *Anal cancer is one of the deadliest forms of cancer* ($n = 6$, 7%); item 11: *The presence of hemorrhoids increases the likelihood of HPV* ($n = 9$, 11%); and item 13: *A low fiber diet decreases the likelihood of HPV* ($n = 12$, 14%). Table 2 displays each knowledge item from the questionnaire along with the

frequency and percentage of correct responses for each item.

The second research question asked how many of the participants had been screened and/or were aware of the need for anal Pap smear screening. The majority of participants ($n = 88$, 98.9%) had seen a primary care provider at least one time in the previous 6 months. However, 49 (55.1%) of the participants had never heard of an anal Pap smear, while 83 (93.3%) reported never having had one.

The third research question asked about the source(s) that MSM used to obtain information about the need for anal Pap smear screening. Of the 49 respondents who reported having heard about the need for anal Pap smears, five (10.2%) learned about it through their primary physician, eight

Table 2. Frequencies and Percentages of Correct Scores for Knowledge Items

Item	<i>n</i>	% Correct
1. HPV is the virus that causes herpes.	41	49
2. Genital warts are caused by HPV.	38	47
3. HPV is the virus that can cause anal cancer.	41	48
4. The best way to prevent complications caused by HPV is to have regular anal smears.	41	49
5. If a man's anal smear is normal, he does not have HPV.	22	27
6. Changes in an anal smear may indicate a man has HPV.	36	43
7. Anal smears will most always detect HPV.	17	21
8. A symptom of HPV is wart-like growths.	40	48
9. If untreated, HPV can cause precancer or anal dysplasia.	41	49
10. Receptive anal intercourse increases the likelihood of HPV.	40	49
11. The presence of hemorrhoids increases the likelihood of HPV.	9	11
12. Bleeding or a bloody discharge is a symptom of anal cancer.	30	36
13. A low-fiber diet increases the likelihood of HPV.	12	14
14. High fruit intake decreases the likelihood of HPV.	18	21
15. Men are not susceptible to HPV.	48	57
16. Only gay men can get HPV.	51	61
17. Women are only susceptible to HPV.	47	56
18. Only HIV-positive men are susceptible to HPV.	51	61
19. Eating foods high in fat increase my chances of contracting HPV.	18	21
20. Most people who get HPV will develop cancer.	20	25
21. Successful treatments are available for HPV.	76	94
22. It is important for gay men to screen for HPV.	53	66
23. Anal cancer is one of the deadliest forms of cancer.	6	7
24. If I have regular anal smears, my chances of detecting HPV is increased.	34	42
25. If I have regular anal smears, I will detect HPV before it becomes serious.	47	57
26. I would feel pain if I had an anal smear.	27	30
27. Using condoms is easy to do to prevent HPV.	40	49
28. There is little chance of a cure for HPV if detected early.	22	27
29. If I use condoms when having intercourse I am less likely to get HPV.	43	52

NOTE: HPV = human papillomavirus. Percentages are based on number of participants who answered each item and are rounded.

(16.3%) from a nurse in their primary care practice, 16 (32.7%) from another health care professional, four (8.2%) from a friend or family member, four (8.2%) from a magazine, three (6.1%) from television, and nine (18.3%) from an unidentified source. One of these 49 participants selected two sources (i.e., magazine and another health professional), while two selected three sources (i.e., magazine, nurse in their primary care practice, and other health professional; primary physician, nurse in their primary care practice, and another health professional). One participant reported four sources (i.e., primary physician, nurse in their primary care practice, another health professional, and magazine).

Discussion

Very poor results were found for the majority of knowledge items on the questionnaire, with only eight of the items having a correct score of 50% or more. Results from this study indicated knowledge deficits for MSM regarding HPV, anorectal carcinoma, and screening. Participants scored poorly on questionnaire items assessing knowledge about the pathophysiology of HPV, the technical procedure and facts about anal Pap screening, risk factors for acquisition of HPV and anorectal carcinoma, and HPV-infection prevention methods. Although the Australian sample was much larger ($N = 384$), these findings are very similar to the results of Pitts and colleagues (2007), who found that most participants had knowledge deficits about these same topics. In fact, 19% of that sample answered every HPV knowledge item incorrectly.

Findings from our study indicated a significant need for both primary care providers and public health practitioners to educate MSM patients about the pathophysiology of HPV, the relationship between HPV and anorectal carcinoma, and the facts about anorectal Pap screenings. The CDC (2010c) has excellent teaching tools for educating patients about HPV. The informational brochure, *Genital HPV Infection—Fact Sheet*, is available from the CDC's Internet site in both English (http://www.cdc.gov/std/HPV/STD_Fact-HPV.htm) and Spanish (<http://www.cdc.gov/std/Spanish/STDFact-HPV-s.htm>). It provides answers

for both men and women about the epidemiology of HPV, risk factors, prevention methods, and the relationship between HPV and HPV-associated cancers. *HPV and Men: Fact Sheet* (CDC, 2010b), available at <http://www.cdc.gov/std/hpv/stdfact-hpv-and-men.htm>, discusses many of the implications of HPV in MSM, particularly anorectal and other HPV-associated cancers.

More than half of the MSM in our sample had never heard of anal Pap screening. Of the MSM who had heard about anal Pap screening, slightly more than half ($n = 29$, 52.9%) received this information from a health care professional. Pitts and colleagues (2007) also found that most participants were rarely screened or educated about these issues by their health care providers. More than half of the Australian sample had never heard of an anal Pap test and were confused about the prevalence of HPV in women versus men. However, more than twice as many (14.3%) in the Australian sample had been screened with an anal Pap test in comparison to the MSM in our study.

Because no data exist on the number of MSM who tell their primary care providers about their sexual orientation, providers should question all patients about their sexual histories in a nonjudgmental manner and should make no assumptions about anyone's sexual orientation (Reed et al., 2010). Recommendations regarding the widespread implementation of anal Pap screening in MSM are conflicting. However, many health authorities support annual anal Pap screenings in this population (CDC, 2010b). Regardless, it is important for providers to assess patient risk for HPV infection when considering screening approaches. Assessment of the patient's consistent use of condoms during anal sexual intercourse and his number of sexual partners is essential. Clinicians should learn the proper technique for screening MSM for anorectal carcinoma and review the relevant literature about the topic. Blackwell (2008) provides an overview of the clinical importance of screening MSM using anal Pap smears and also describes the technical procedure.

The knowledge deficits found in this study and by others support the need for effective public outreach to help increase awareness in MSM. Public health officials and practitioners could target events with large numbers of MSM attendees and provide brochures and educational information about HPV,

anorectal carcinoma, and screening methods. In addition, sexual Internet networking sites are becoming a more prevalent means for MSM to meet sexual partners and could be leveraged as education and information venues (Blackwell, 2010). County, state, and national health authorities could design banner ads and other online information campaigns to place on these sites with the aim of providing education about HPV and anal cancer for MSM. Such embedded interventions in these online environments have effectively encouraged syphilis screening for high-risk MSM (Klausner, Levine, & Kent, 2004) and could provide similar results for HPV, anorectal carcinoma, and anal Pap screening.

Future Research and Nursing Education

Studies that have assessed knowledge levels of MSM regarding HPV, anorectal cancer, and screening, including our study, have been geographically restricted and have not been conducted on sample sizes large enough to permit widespread generalizability. In addition, research in general with gay populations is difficult. Because homosexual and bisexual orientations are still socially stigmatized, participants may be reluctant to participate in studies about sexuality and STIs.

Despite these challenges, it is essential for nurse scientists to persevere and design studies with a high amount of scientific rigor. Future research on this topic should focus on national samples of MSM. There should also be a focus on physicians', nurses', and other frontline primary care providers' knowledge about these topics and their beliefs and attitudes about providing services to MSM along with preferred practice patterns to screen for STIs. In-service education, continuing education activities, and conference presentations designed to augment provider knowledge on these topics are effective strategies to increase knowledge among clinicians. Also, nurse educators should strive to include topics about GLBT health in undergraduate and graduate curricula to ensure that future nurses are educated about topics in cultural diversity inclusive of GLBT-related health content.

Limitations

This study had several limitations. Perhaps the most significant limitation was the relatively small sample size and restricted sampling location. Attempts were made to include as many participants as possible; however, only 89 MSM agreed to participate, and they were from similar demographic and geographic backgrounds. Therefore, generalizability of results is limited. In addition, study findings and implications are limited by the responses provided by participants. It was assumed that participants provided honest answers. Although data were anonymous, some participants may have been concerned about revealing their sexual orientation and sexual history and, therefore, provided answers that may not have been entirely truthful. However, this is a limitation common to research with stigmatized groups and vulnerable populations. Finally, the instrument, although used in prior research studies, was not constructed to allow for psychometric testing. This weakened the ability to scrutinize its components and improve its efficacy.

Summary and Conclusion

Effective screening is currently available to help detect cellular changes in the anorectal area that may lead to disease from HPV, yet very little inquiry has been devoted to determine knowledge levels of MSM regarding HPV, anorectal carcinoma, and anorectal carcinoma screening, or the level of discussions about these topics between health care providers and MSM. This article presented findings from a descriptive research study designed to gauge baseline knowledge about HPV, anorectal carcinoma, and anorectal carcinoma screening.

Results showed significant knowledge deficits within the sample. Participants also acknowledged that they had rarely discussed these topics with their health care providers. These findings support the need for effective community outreach to promote increased knowledge about HPV, anorectal carcinoma, and anorectal screening for this vulnerable population and their health care providers.

Clinical Considerations

- MSM are at increased risk for anal HPV infection, anal dysplasia, and anal carcinoma. However, MSM may not disclose their sexual orientation to health care providers or realize the need for HPV testing and anal screening.
- Screening for HPV in women has significantly reduced the rate of cervical cancer. The same strategy could lead to a reduction in anal cancers in MSM.
- Nurse and physician providers should acquire the necessary skills to obtain thorough sexual histories from their patients in a nonjudgmental manner. Sexual-history taking should be included in all nursing education programs.
- Nurse and physician providers have a direct influence on whether the MSM patient obtains anal cancer screening to limit morbidity and mortality from HPV-related cancers.
- Nurses and public health professionals should realize the importance of outreach through social networking media and at events that are attended by MSM, and where HPV and anorectal screening education can be provided.

Disclosures

The authors report no real or perceived vested interests that relate to this article (including relationships with pharmaceutical companies, biomedical device manufacturers, grantors, or other entities whose products or services are related to topics covered in this manuscript) that could be construed as a conflict of interest.

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