Factors Associated With Inadequate Cervical Cancer Screening Among Lower Income Primary Care Patients

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***Abstract*: This study identified factors associated with cervical cancer screening patterns among lower income primary care patients. One hundred forty-one women completed a self-administered questionnaire before their medical visit. The results indicated that 71 percent had a Papanicolaou (Pap) test in the past year, 14 percent had one between 1 and 3 years ago, and 15 percent had not had a Pap test for 3 or more years. Advanced age was associated with a reduced likelihood of adequate screening; 21 percent of women aged 50–64 years and 39 percent of those aged 65 years and older had not had a Pap test in the past 3 years. Factors positively associated with screening included perceived susceptibility to cervical cancer and the belief in the efficacy of Pap tests and benefits of screening. Fear of finding cancer was a significant barrier to cervical screening in this population. Of those women who had not been screened adequately, 58 percent were interested in obtaining Pap tests in the primary care setting. The implications for promoting cervical cancer screening in primary care practices are discussed. (J Am Board Fam Pract 1990; 3:151-6.)**

The American Cancer Society (ACS) estimated that 13,000 women would develop cervical cancer in 1989, and 6,000 women would die from this disease.[1] Older women accounted for 24 percent of these cases and approximately 41 percent of deaths.[2] Cervical cancer screening programs have the potential to reduce cervical cancer incidence and mortality substantially.[3,4] In fact, it has been estimated that as many as 75 percent of cervical cancers are preventable through early detection and treatment of cervical precursor lesions.[3,5] While controversy exists about the best schedule for cervical cancer screening, the most recent ACS guidelines emphasize annual Papanicolaou (Pap) tests for all women. Following two negative Pap smears, triennial screening is recommended.[6]

Recent studies have reported, however, that a large proportion of women have not been adequately screened for cervical cancer.[7,8] According to a 1987 National Cancer Institute (NCI) survey, more than 30 percent of women aged 20 years and older had not had a Pap smear in the past 3 years.[9] Moreover, as many as 80 percent of women with invasive cervical cancer had *never* had a Pap test.[10-13] Women more than age 50 years and lower income nonwhite women were least likely to be screened.[14-16]

Primary care practices may be the best place to reach these underscreened high-risk groups.[8,12] Several studies have suggested, however, that a proportion of women may not accept cervical cancer screening when recommended by their primary physicians.[17-19] In one study, overall rates of compliance with recommendations for Pap testing were about 69 percent.[17] Older women may be even less likely to follow a recommendation for Pap testing.[18] In one study, only 20 percent of women primary care patients aged 65 years and older participated in screening, compared with 95 percent of women aged 25–29 years.[19] Little is known about reasons why these patients may resist cervical cancer screening. This information is critical, however, if physicians are to promote screening to their high-risk patients. Moreover, identification of knowledge and beliefs associated with nonparticipation can guide the development of health education interventions for the primary care setting.

The present study was conducted to assess the knowledge, attitudes, and cervical cancer screen-

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ing histories of adult patients in a lower income urban medical clinic. Also, we sought to identify demographic factors and attitudes associated with inadequate screening in this population. Hypotheses about screening patterns were based on the Health Belief Model (HBM), which predicts that people will engage in preventive health behaviors when they feel personally susceptible to the disease, believe in the preventability and curability of the disease, and believe that the benefits of health-related behavior outweigh any costs involved.[20]

Methods

Patients

The patients were 141 adult women in the general internal medicine practices of Temple University Hospital. These practices serve the predominantly older and lower income community of North Philadelphia. The majority of the patient population had Medicaid, Medicare, or HMO health insurance. Most women had an identified physician who provided their regular care. Eligibility criteria included having an intact uterus and an ability to read and speak English. Women with a history of cervical cancer were excluded. Less than 5 percent of all women refused to participate in the study.

Procedure

Before their medical visit, eligible women were asked to complete a brief self-administered questionnaire entitled, "Women's Attitudes about Health." This measure assessed several variables that were expected to influence women's decisions to participate in cervical cancer screening (see evaluation components below). Responses to this baseline questionnaire constituted the data used in our study to identify factors associated with cervical screening patterns.

The baseline questionnaire, administered to all eligible women, measured the following factors:

Sociodemographic characteristics. Age, race, marital status, employment status, and educational level.

Screening variables. Time since last Pap test, number of Pap tests, and current interest in receiving Pap tests in the primary care setting.

Health belief variables. Patients responded to 4- or 5-point Likert-scale questions, which evaluated the following factors: (1) Perceived risk: risk of cervical cancer was rated as very unlikely, somewhat unlikely, somewhat likely, or very likely; (2) Efficacy-curability: strength of agreement or disagreement with the statements, "Pap tests are the best way to find cervical cancer early" and "Cervical cancer can be completely cured if found early"; (3) Belief in asymptomatology: strength of agreement or disagreement with the statement, "A woman can tell if she has cervical cancer because she will feel sick"; (4) Benefits: strength of agreement or disagreement with the statement, "It's worth getting a Pap test to make sure nothing is wrong with me"; and (5) Barriers: strength of agreement or disagreement with statements regarding embarrassment, discomfort associated with Pap testing, and worry about finding cervical cancer.

Results

Descriptive Statistics

Sociodemographic characteristics. As shown in Table 1, 45 percent of respondents were aged 20–34 years; 25 percent were aged 35 to 49; and 30 percent were aged 50 and older. Most were black (86 percent); 9 percent were white, 4 percent were Hispanic, and 1 percent were Asian. Only 37 percent were married. More than one-fourth had less than a high-school education, 58 percent had either completed high school or had some technical or college education, and 15 percent had completed college.

Table 1. Demographic Characteristic of Respondents.

Variable	n (Percent)
Age	
20–34	63 (45)
35–49	34 (25)
50 and up	43 (30)
Race	
Black	120 (86)
Hispanic	6 (04)
White	13 (09)
Asian	1 (01)
Marital status	
Unmarried	89 (63)
Married	52 (37)
Educational level	
Grade school	12 (09)
Some high school (HS)	25 (18)
HS graduate or GED	41 (29)
Some college	41 (29)
College graduate or +	21 (15)

Screening characteristics. Baseline screening characteristics of respondents are shown in Table 2. Most women had heard of Pap tests (94 percent) and had had a Pap test (92 percent). Regarding screening intervals, 71 percent of respondents reported that they had had a Pap test within the past year, 14 percent had one between 1 and 3 years ago, and 15 percent had not had a Pap test for at least 3 years. Among those women who had not had a Pap test for 3 or more years, there was substantial interest in receiving Pap tests in the primary care setting; 26 percent of these women said that they were moderately interested and 32 percent were extremely interested.

Attitudes. In general, the women did not feel particularly susceptible to cervical cancer. The majority rated this disease as very unlikely (56 percent) or somewhat unlikely (18 percent). In addition, about 70 percent were not aware that cervical cancer can be asymptomatic. However, many women agreed strongly that Pap tests are effective (67 percent) and that Pap tests are worth getting (78 percent). Fewer women agreed strongly that early cervical cancer is curable (46 percent). Several important barriers to screening were acknowledged; 70 percent of women agreed that Pap testing is embarrassing, 45 percent agreed that it is uncomfortable, and 67 percent agreed that they were worried about finding cervical cancer.

Factors Associated with Screening Patterns

Years since last Pap test. In accordance with the American Cancer Society guidelines for the frequency of cervical screening, women were divided into two groups: (1) women who had had a Pap test within the past 3 years, and (2) women who had not had a Pap test for more than 3 years. Chi-square tests were conducted to identify variables associated with earlier screening. Age exhibited a strong significant negative association with screening patterns ($P < 0.001$). While only 9 percent of women aged 25–34 and 35–49 years had not had a Pap test within the past 3 years, the proportions of women aged 50–64 and 65 years and older who had never been screened were 21 percent and 39 percent, respectively (Table 3).

Table 4 shows other demographic and attitude variables that were significantly associated with screening adequacy. Women who reported that they had had a Pap test in the past 3 years were more likely to be employed ($P < 0.001$) and to have at least a high-school education ($P < 0.02$) compared with women who had not had a Pap test for 3 or more years. Women who had been screened in the past 3 years also perceived themselves to be at greater risk for cervical cancer ($P < 0.05$), believed that screening is effective ($P < 0.01$) and that it was "worth it to make sure that nothing is wrong" ($P < 0.002$). Women who were worried about finding cervical cancer were significantly less likely to have had a Pap test within the past 3 years ($P < 0.01$).

Multiple linear regression analysis was conducted to develop a multivariable model of the variable "years since last Pap test." Two variables emerged as significant independent predictors: age ($r = -0.32, P < 0.001$) and worry about finding cervical cancer ($r = -0.23, P < 0.03$). Thus, older women and those who were worried about finding cervical cancer were less likely to have

Table 2. Screening Characteristics of Respondents.

Variable	n (Percent)
Heard of Pap test	
Yes	133 (94)
No	8 (06)
Ever had Pap test	
Yes	130 (92)
No	3 (02)
Don't know	8 (06)
When last Pap test	
Less than 1 year ago	100 (71)
1–3 years ago	20 (14)
Greater than 3 years ago	21 (15)
Number of Pap tests	
None	3 (02)
Less than 5	32 (24)
5–10	46 (34)
More than 10	54 (40)

Table 3. Percent Respondents Screened by Age.

Last Pap Test	Age*			
	20–34 Years (percent)	35–49 Years (percent)	50–65 Years (percent)	65+ Years (percent)
<1 year ago	85	69	54	43
1 to 3 years ago	6	22	25	18
>3 years ago	9	9	21	39

*Chi-square significance $P < 0.001$.

Table 4. Factors Associated Significantly with the Likelihood of Being Screened within Past 3 Years.*

Variable	Chi-Square Tests $X^2(P)$
Demographic factors	
Age	37.8 (0.001)
Employed	10.1 (0.001)
Education	5.7 (0.02)
Attitudes	
Perceived risk of cervical cancer	2.7 (0.1)
Pap effective	6.1 (0.01)
Worth getting Pap to make sure nothing wrong	9.9 (0.002)
Worry about finding cervical cancer	6.2 (0.01)

*Versus more than 3 years ago.

had a Pap test within the past 3 years. Together, these two variables accounted for 14 percent of the variance in this outcome.

Number of Pap tests ever had. Multiple linear regression analysis was conducted to account for the variance in the variable "number of Pap tests ever had." Age was forced into the equation first to control for the increased opportunities for screening with advancing age. There was no significant association between age and the number of Pap tests women had. However, three variables were significantly associated with this outcome. Women who were worried about finding cervical cancer ($r = -0.31$, $P < 0.006$) and those who thought Pap tests are embarrassing ($r = -0.30$; $P < 0.003$) had significantly fewer Pap tests than women who did not hold these beliefs. Women who believed that Pap tests are effective had a significantly greater number of Pap tests than other women ($r = 0.25$, $P < 0.04$). Together, these three variables accounted for 23 percent of the variance in the number of Pap tests women ever had.

Factors associated with age. Because age was a critical factor in determining whether a woman had been screened adequately, we calculated point-biserial correlations between age and attitudes; thus, we attempted to identify potential attitudinal barriers to screening among older women. Two variables were significantly associated negatively with age: perceived risk of cervical cancer ($r = -0.17$; $P < 0.03$) and the belief that it's worth getting Pap tests to make sure that nothing is wrong ($r = -0.37$; $P < 0.001$). Thus, relative to younger women, older women believed they were less vulnerable to cervical cancer and believed Pap tests to be less beneficial.

Discussion

The present study was designed to identify demographic factors and attitudes associated with inadequate cervical cancer screening among lower income women patients in an urban primary care practice. Based on respondents' self reports, 71 percent had had a Pap test in the past year; 14 percent had one between 1 and 3 years ago; and 15 percent of these women had not had a Pap test for 3 or more years. These screening rates were somewhat higher than expected, given population-based estimates of 30 percent for women who had not had a Pap test within 3 years.[9] This difference may be because the national survey included rural residents, many of whom are underscreened due to limited access to medical facilities.[16] In addition, patient self-reports of Pap testing may be inflated, compared with provider data or medical records.[21]

The results of bivariate analyses showed several factors associated with the frequency of cervical cancer screening. Older, unemployed, and less educated women were significantly less likely to have had a Pap test within the past 3 years. Several health beliefs appeared to facilitate cervical screening, including perceived personal risk of cervical cancer and the beliefs that Pap tests are effective and worth getting to make sure that nothing is wrong. In contrast, women who were worried about finding cervical cancer were less likely to have been screened adequately.

The inadequacy of cervical cancer screening among older primary care patients is of great concern.[16,18] In this study, 21 percent of patients aged 50–64 years and 39 percent of those aged more than 65 years had not had a Pap test for at least 3 years. Analyses were conducted to identify potential barriers to screening that are more important for older patients. Results indicated that older women were less likely to believe, "It's worth getting Pap tests to find out that nothing is wrong," and they tended to perceive themselves as less vulnerable to cervical cancer. These findings are particularly important, because the risk of developing cervical cancer actually increases with age.[2] These faulty beliefs may account, in part, for the frequent failure of older women to

seek cervical cancer screening after their childbearing years.

Our findings indicate also that a substantial number of underscreened women would avail themselves to cervical cancer screening if offered by primary care physicians. Of those women who had not been screened for 3 or more years, 58 percent reported that they were interested in obtaining Pap tests in this setting. The failure of many physicians to provide routine gynecological care to their underscreened patients may reflect an assumption that these patients are being screened elsewhere or that they are not interested in receiving gynecologic care.[18] This is not supported by the present data, however. While economic concerns also may be a barrier for some general practitioners, recent reports suggest that screening in the primary care setting can be cost effective, even for women aged 65 years and older.[22,23]

The present findings may shed some light on possible ways for primary care physicians to promote cervical cancer screening to these high-risk patients. For example, very few patients were aware that cervical cancer can be asymptomatic or that they are at relatively greater risk for this disease because of advancing age. Educating women may enhance their perceived vulnerability to cervical cancer and prompt them to participate in regular screening. However, it is important that the physician present such information in a nonthreatening and reassuring manner, because the present findings, and earlier reports,[24] indicate that cancer fears or worries may deter participation in initial or repeat screening. Patients' fears about detecting cancer might be allayed by emphasizing the peace of mind associated with a negative result, as well as the efficacy of early detection and treatment in *preventing* cervical cancer. Conversely, it is important for physicians to understand the impact of an abnormal Pap smear result on a woman, both in terms of the psychological impact and the effect on future participation in screening.[25] These needs must be addressed by physicians if screening is to be implemented successfully in the primary care setting.

Future research is needed to evaluate methods for primary physicians to invite and to remind their patients to participate in regular cervical screening. Previous studies have suggested that both letters and personal contact can be effective.[17,24] Community outreach and mobile screening programs would be expected to increase adherence further.[8] Additional studies of barriers and facilitators to screening in the primary care setting need to be implemented on more heterogeneous patient populations to corroborate the present findings. Also, in future studies, it may be useful to validate patient reports of Pap testing with medical records, because self-reports of screening frequency may be subject to forgetting and recall bias.[21]

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