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Associations of an abnormal pap test result with attitudes and beliefs relevant to cervical cancer: a study of rural appalachian women

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Abstract

Purpose—To compare women who recall being informed of an abnormal Pap to those not having this experience relative to attitudes and **beliefs** pertaining to screening for cervical cancer.

Methods—400 women were recruited from eight rural Appalachian counties, in 2013 and 2014. Women completed a paper-and-pencil survey after providing written informed consent. Bivariate associations and age-adjusted associations were calculated between the self-reported experience of being told of an abnormal Pap test result and eight attitudes/beliefs relative to the prevention of cervical cancer. Data analyses were performed in 2014.

Results—The mean age was **40.2 years (range = 30–64 - years)**. Eighteen women chose not to answer the question asking about ever having an abnormal Pap test result, **leaving $N = 382$** . Of the 382 women who did answer, 122 (30.6 %) indicating have been told they have an abnormal Pap test result and the remaining 260 (65.2 %) indicated never having this experience. With the exception of one item assessing knowledge that HPV is the cause of cervical cancer, between-group differences in attitudes, **beliefs**, and intent to have a Pap test the next time one is due were not observed.

Conclusions—Although we hypothesized that women ever having an abnormal Pap test may have actively sought to learn more about cervical cancer and its prevention, findings suggest that this is not the case. Informing women of an abnormal result could be coupled with a high-intensity counseling designed to improve attitudes and beliefs relative to women's role in protecting themselves from cervical cancer.

Keywords

Cervical cancer screening; Pap testing; Appalachia; Rural; Women

Introduction

Cervical cancer mortality is preventable if women and their health care providers remain vigilant about following screening guidelines. [1, 2] Unfortunately, guidance for post-Pap test counseling and education designed to foster women's return for their next Pap test has

not been offered at a national level. Given the potential for substantial stress upon being told that a Pap test result is abnormal, such guidance may be particularly important for these women. The question of how the experience of having an abnormal Pap test result may change women's attitudes and beliefs about subsequent Pap testing is unexplored. Based on the transactional model of stress and coping, [3] we hypothesized that women ever having an abnormal Pap test may have actively sought to learn more about cervical cancer and its prevention. In theory, whether the result is simply an ASCUS Pap or some form of dysplasia, the experience of being informed that the result is "abnormal" by a health care provider is one that could stimulate greater vigilance in women regarding future screenings for cervical cancer. [3] The process of informing women that their Pap test result is abnormal could be coupled with high-intensity counseling designed to favorably impact their belief systems relative to their prevention of cervical cancer.

Although CDC recommends that women receiving abnormal cytology results should receive counseling, [4] potential objectives and content of these counseling sessions are not offered. In fact, little is known about the counseling needs of these women as studies have not investigated how the experience of an abnormal Pap test result may change women's attitudes/perceptions. Accordingly, the purpose of this study was to compare women who recall being informed of an abnormal Pap to those not having this experience relative to selected attitudes and perceptions pertaining to screening for cervical cancer. This question is quite different from one that has been highly investigated: how those with an abnormal Pap can be counseled into returning for immediate follow-up care. [5, 6].

Methods

Study sample

Data were used from a study designed to test the feasibility of self-collected vaginal swabs as a method of improved case finding for cervical cancer. The target enrollment for this study was 400 women; 441 women were invited to participate in the study before the recruitment goal was reached, yielding a participation rate of 90.7 %. Recruitment occurred in eight economically distressed counties of rural Appalachian Kentucky from late 2013 until mid-year of 2014. Appalachian women may face economic and environmental barriers that prevent regular Pap testing. [4–6] Eligibility criteria were: (1) being between 30 and 65 years of age, (2) reporting not having a Pap test in the past 3 years, and (3) reporting not currently being pregnant, (4) reporting never testing positive for HPV, and (5) reporting sexual activity in the past 12 months. Recruitment flyers were posted in local health departments. Women were also recruited interpersonally at community outreach events and non-traditional healthcare settings (e.g., mental health and substance use treatment clinics).

Procedures

All study procedures were approved by the Office of Research Integrity at the University of Kentucky. Only female research assistants were employed. Women completed a paper-and-pencil survey after providing written informed consent. Survey questions collected demographic and health information, as well as attitudes/beliefs relevant to cervical cancer and screening for cervical cancer. Women received a \$20 gift card to compensate their time.

Self-reported outcome measures

Eight outcomes were selected. Single items assessed women's beliefs that Pap testing is "a hassle" and is "too expensive." A 6-item scale assessed women's attitudes toward HPV testing. Items such as, "I would feel dirty if a doctor examined me for HPV" and "People with HPV should be ashamed of themselves" comprised the scale. The scale produced satisfactory inter-item reliability as indicated by a Cronbach's alpha of .76. A single item assessed women's belief that would not survive cervical cancer. Single items also assessed their intent to have a Pap test when the next one is due, the belief that cervical cancer can be prevented, their agreement that odds of personally preventing cervical cancer are "not good," and knowledge that HPV is the cause of cervical cancer.

Data analysis

Chi square analyses were used to compare women reporting ever having an abnormal Pap to those not having this experience. Analytic covariates were identified by using a screening level of significance ($P < .10$). For each of the associations between ever having an abnormal Pap test result and the selected outcomes, logistic regression models were used to estimate odds ratios adjusted for the identified covariates. This was achieved by entering the covariates into the first block of a two-block model, with the variable representing ever having an abnormal Pap test result being block two. Data analyses occurred in April of 2016.

Results

Eighteen women chose not to answer the question asking about ever having an abnormal Pap test result. Of the 382 women who did answer, 122 (30.6 %) indicating have been told they have an abnormal Pap test result and the remaining 260 (65.2 %) indicated never having this experience.

Average age of the sample was 40.2 years (standard deviation = 9.3 years, range = 30–64 years). The majority reported their race was White (93.8 %), with 2.8 % identifying as Black and the remainder identifying as other races. The majority (59.3 %) reported a monthly household income of less than \$1,000. Just over one-half (54.0 %) of the women were single. Twelve percent had never had children. Just less than one-half (45.5 %) reported having sex with five or more male partners in their lifetime. Using a dichotomized age variable (determined by a median split), Table 1 displays these descriptive characteristics, stratified by whether women had ever had an abnormal Pap test result. As shown, other than income each comparison was below the screening level of significance for use as analytic covariates.

Unadjusted findings

Table 2 displays the bivariate associations between ever having an abnormal Pap test result and the eight selected outcomes. As shown, only one of these eight outcomes yielded significant differences; those ever having an abnormal result were significantly more likely to know that HPV is the cause of cervical cancer.

Age-adjusted findings

Table 3 displays the odds ratios adjusted for the influence of age, single/married, having 5 or more male sex partners over the lifetime, and whether women had ever had children. As shown, adjusting for the covariates did not alter the lack of association between ever having an abnormal result and six of the seven outcomes lacking significance at the bivariate level. One association that was not significant at the bivariate level became significant in the presence of the covariates: Doubting they can survive cervical cancer. Women ever having an abnormal Pap test result had about one-third lower odds of holding this belief (adjusted odds ratio .64, 95 % CI .41–.98). The one significant bivariate association persisted after adjusting for the covariates: women ever having an abnormal result had about 50 % lower odds of being unaware that HPV is the cause of cervical cancer (adjusted odds ratio .49, 95 % CI .31–.78).

Of note, with only one exception, none of the covariates yielded significant associations with the outcomes. The exception pertained to intent not to have the next scheduled Pap test. Women having five or more male sex partners in their lifetime had 1.6 times greater odds to indicate this negative intent (adjusted odds ratio 1.61, 95 % CI 1.04–2.48).

Discussion

Findings suggest that, among rural Appalachian women, the experience of ever being informed that a Pap test result is abnormal may not be one that has a great deal of influence over subsequently held attitudes and beliefs about cervical cancer prevention. With two exceptions, the hypothesis that women ever having an abnormal Pap test may have actively sought to learn more about cervical cancer and its prevention was not supported in that they were no more likely than their counterparts never having an abnormal Pap result to hold highly favorable attitudes and beliefs toward cervical cancer prevention.

The two exceptions were the positive effect of ever having an abnormal Pap result: (1) on the basic knowledge-based item (HPV is the cause of cervical cancer) and (2) regarding the belief that they could not survive cervical cancer. The latter finding was intriguing because it does suggest that cervical cancer fatalism may be less likely among women who have an abnormal Pap test result. Other than these two exceptions, differences between the 30 % ever having an abnormal Pap and the 65 % never having this experience were not observed relative to seven measures of attitudes and beliefs, including intent to have a Pap test when the next one is due. This suggests that post-diagnostic counseling and education protocols could be substantially improved. Indeed, a “teachable moment” occurs when women are informed that they have an abnormal Pap test result. Whether providers use that opportunity to enhance women’s beliefs that they can and should play an active role in preventing their own cervical cancer is emblematic of a commitment to prevention.

Health care providers who are dedicated to cancer prevention have a clear opportunity to favorably change the belief systems of women who may otherwise be at high-risk of developing cervical cancer. Given a recently passed policy from the Center for Medicare and Medicaid Services (CMS) that will reimburse clinics for two 30-min preventive counseling

sessions per year, [7] it is timely to construct protocols for clinician-delivered counseling that is coupled with the diagnosis of an abnormal Pap test result.

Conclusions

Although we hypothesized that women ever having an abnormal Pap test may have actively sought to learn more about cervical cancer and its prevention, findings suggest that this is not the case. Although generalizability is limited by the use of a convenience sample of rural Appalachian women, findings suggest that the process of informing women of an abnormal Pap test result should be coupled with counseling session designed to improve attitudes/perceptions relative to women's role in protecting themselves from cervical cancer.

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Table 1

Selected socio-demographic characteristics of the sample, stratified by ever having an abnormal pap test result

Characteristic	% Among never abnormal	% Among abnormal	<i>P</i>
Age 38 or older	52.3	41.8	.056
Household monthly income <\$1,000	56.9	63.9	.19
Single	50.8	62.3	.056
Lifetime # of male sex partners	5 38.8	59.0	<.001

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Table 2

Bivariate associations between ever having an abnormal pap test result and selected outcomes

Outcome	% Never abnormal	% Abnormal	<i>P</i>
Agree that having a Pap test is “a hassle” ^a	56.5	52.1	.43
Agree that having a Pap test is “too expensive” ^b	45.1	52.1	.21
Negative attitude toward HPV testing ^c	49.4	51.3	.74
Doubt they can survive cervical cancer ^d	58.6	47.9	.053
Will not have next scheduled Pap test ^e	63.7	63.9	.97
Believe that cervical cancer is not preventable ^f	37.1	28.9	.12
Odds of preventing cervical cancer are not good ^g	39.8	34.2	.29
Not aware that cervical cancer is caused by an STI ^h	77.7	63.1	.003

^aThe distribution for this item was dichotomized by a median split to yield 206 classified as “agree”

^bThe distribution for this item was dichotomized by a median split to yield 179 classified as “agree”

^cThe distribution for this scale was dichotomized by a median split to yield 183 classified as having negative attitudes toward HPV testing

^d207 women stated they were “unsure” or they would not survive cervical cancer

^e243 women did not indicate they would have the next Pap test when it was supposed to occur

^f130 women indicated this belief

^g143 women did not disagree with this statement

^h279 women were not aware that cervical cancer is caused a sexually transmitted infection

Table 3

Adjusted associations between ever having an abnormal pap test result and selected outcomes

Outcome	AOR	95 % CI	P
Agree that having a Pap test is “a hassle”	.84	.54/1.31	.44
Agree that having a Pap test is “too expensive”	1.32	.86/2.05	.20
Negative attitude toward HPV testing	1.08	.69/1.68	.74
Doubt they can survive cervical cancer	.64	.41/.98	.04
Will not have next scheduled Pap test	.91	.57/1.44	.68
Believe that cervical cancer is not preventable	.67	.42/1.07	.10
Odds of preventing cervical cancer are not good	.78	.49/1.22	.27
Not aware that cervical cancer is caused by an STI	.49	.31/.78	.003

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