Life Stressors Are an Important Reason for Women Discontinuing Follow-up Care for Cervical Neoplasia

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Abstract

Although studies have addressed psychosocial factors associated with obtaining follow-up care for an abnormal Pap test, none have explored the effect of stressful life events in predicting the receipt of follow-up care for an abnormal Pap test. Data from a program (1995-2001) that provided free follow-up care for women with low-grade cervical lesions (n = 601) was used to determine whether life stressors increased risk of study discontinuation. Women were interviewed at baseline and offered follow-up at 4- to 6-month intervals for up to 24 months. Of the 556 women recruited and interviewed (92% response rate), 53 were referred out because they had high-grade cervical lesions and 33 had a health condition precluding follow-up. Among 470 women who began follow-up, 175 (37.2%) discontinued before completing three visits. Women who discontinued were significantly more likely to report more stressful life events in the past year [age-adjusted relative risk (aRR), 1.19; 95% confidence interval (95% CI), 1.08-1.30; 17-item scale]. Events most strongly associated with discontinuation included having a problem with a boss (aRR, 1.9; 95% CI, 1.5-2.4), severe physical partner violence (aRR, 1.7; 95% CI, 1.3-2.2), being homeless (aRR, 2.1; 95% CI, 1.6-2.8), and having an unplanned pregnancy (aRR, 1.5, 95% CI, 1.2-2.1). Life stressors may be important predictors of discontinuation of free follow-up care among women in need of immediate follow-up care to prevent lesion progression. (Cancer Epidemiol Biomarkers Prev 2006;15(2):321–5)

Introduction

Pap test screening has reduced cervical cancer incidence and mortality, yet the entire benefit of screening can only be realized through timely and complete follow-up care (1). Women with abnormal Pap tests who are referred for follow-up care, but do not receive it, are those most at risk for developing cervical cancer. In general, a range of 20% (2) to 80% (3) of women referred for follow-up do not receive this care. Misunderstanding of the purpose of colposcopy, fear of cancer, and lack of time, money, or insurance have been consistently listed as barriers to receiving timely follow-up care (4, 5). Fatalism may also be associated with poor adherence (6). Khanna at al. (5) concur that the emotional consequences of abnormal Pap tests, including fear, anxiety, and depression, may reduce women's ability to return for follow-up care in a timely manner (7, 8). Anxiety and distress levels were significantly higher among women who were informed of a recent high-risk human papillomavirus (HPV) infection with (9) or without a concurrent cervical abnormality (10). High anxiety may effect rates of follow up-care; French et al. (11) found that nonadherent women had higher anxiety in response to abnormal cervical cytology.

Qualitative research suggests that stressful life events (SLE) may pose additional challenges for women coping with an abnormal Pap test (12, 13). Breitkopf et al. (13) reported that a partner may influence the likelihood of receiving follow-up care by discouraging follow-up care or threatening physical violence. Effective coping strategies to reduce psychological distress from an abnormal Pap test result have been noted (14, 15). Further, individual coping styles have been found to influence a woman's ability to obtain follow-up care (16), particularly if she is experiencing other life stressors.

We developed a conceptual model to guide our analysis. In this model, we posited two pathways by which psychosocial stressors may affect risk of higher-grade cervical neoplasia development. The direct mechanism suggests that women experiencing psychosocial stressors (e.g., violence, economic instability, or relationship stressors) may become immunosuppressed either through the adoption or maintenance of negative coping behaviors (e.g., smoking, poor diet, and limited exercise) or ineffective coping skills as a result of stressors. Anxiety or depressive symptoms may result from psychosocial stressors particularly for women with many stressors, limited social support, and ineffective coping. Immunosuppressed women exposed to high-risk types of human papillomavirus may be more likely to develop a persistent infection that may lead to a high-grade lesion or cervical cancer if not treated. The indirect mechanism proposes that psychosocial stressors may act alone or in combination with limited social or financial support to result in a delay in the woman's receipt of follow-up treatment or a discontinuation in receiving care. This lack of timely treatment may then lead to development of a high-grade lesion or invasive cervical cancer. Psychosocial stressors may also directly affect receipt of follow-up care if the SLE becomes a competing life priority. A competing life priority may supersede the woman's ability to prioritize and obtain follow-up care.

In this study, we are evaluating the indirect mechanism by which chronic stressors may lead to incomplete follow-up care for women with low-grade cervical lesions. To our knowledge, no study has explored high-effect psychosocially SLEs as barriers to receiving continued free care for a low-grade abnormal Pap test among low-income women. We hypothesize that psychosocial life stressors increase the likelihood of discontinuing study follow-up among women offered free follow-up care. This study adds to the existing literature by

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prospectively evaluating the risk of study discontinuation among women with low-grade cervical neoplasia associated with SLEs measured at study recruitment while adjusting for relevant confounders. Our SLE measure assessed whether a specific life event occurred as well as the perceived effect of that event. If psychosocial stressors are associated with receiving incomplete follow-up care for an abnormal Pap test, this finding may help explain why low-income and minority women who typically experience more psychosocial stressors than other women are at increased risk of developing higher-grade cervical lesions or invasive cervical cancer.

Materials and Methods

Data from the Cervical Cancer Education and Prevention Project cohort study conducted from 1995 to 2001 was used to prospectively assess risk factors for high-risk HPV persistence and progression from low-grade squamous intraepithelial lesions to high-grade squamous intraepithelial lesions. Only Medicaid-eligible women qualify to receive care from the Cervical Cancer Education and Prevention Project; thus, all women in the cohort have low income. The study was conducted in South Carolina among those receiving family planning services in health department clinics. The current project included follow-up visits every 4 to 6 months up to 24 months with colposcopic exams, Pap tests, and screens for sexually transmitted infections. Participants were volunteers ages 16 or older who were referred into the study because they had either low-grade squamous intraepithelial lesions or atypical squamous cells of undetermined significance on at least two consecutive Pap tests. Women who progressed to high-grade squamous intraepithelial lesions were referred immediately for free treatment and those with persistent low-grade squamous intraepithelial lesions at study termination were offered free cryotherapy. All participants signed consent forms and had the option to withdraw from the study at any time. Institutional Review Boards at the Medical University of South Carolina, the University of South Carolina, and the South Carolina Department of Heath and Environmental Control approved this project. Baseline care included a repeat Pap test; colposcopy; cervicography; HPV typing; evaluation with wet prep for bacterial vaginosis and vaginitis; and, as clinically indicated, cervical biopsy and tests for gonorrhea, syphilis, chlamydia, and herpes. At each follow-up visit, we repeated the Pap test, conducted colposcopy, took a Cervigram, and collected a cervical sample for HPV typing. To reduce misclassification, the same laboratory (Medical University of South Carolina) evaluated all Pap tests and biopsies. All clinical care was provided at no cost to study participants. Efforts to retain women in this treatment cohort included follow-up phone calls and letters to all women who did not attend scheduled appointments.

Women were interviewed for this study during their first clinic visit. The same trained interviewer conducted all interviews. During this interview, we obtained data to characterize life stressors, sexual and reproductive risk factors for cervical neoplasia, smoking, demographic factors, and mental health indicators of being currently depressed, using antidepressants, or having a mental illness diagnosis.

The outcome for this study was discontinuation in the receipt of follow-up care before the third study visit. We assessed discontinuation by measuring those who were lost to follow-up. Women who did not return for follow-up care and did not provide one of the following reasons were defined as discontinuers: women seeking treatment for an abnormal Pap test, pregnant women, and those with a health condition precluding careful follow-up care (e.g., women with diabetes, lupus, or another chronic disease).

We used the SLE measure based on previous validated work conducted by Norbeck (17, 18) to operationalize psychosocial stressors. Our adapted measure included 17 negative events that are more likely to occur among lower-income and younger women. We asked women whether they had ever experienced the event and, if so, how upset they were when the event first occurred. To measure how recently the event took place, we also asked the woman's age when she last experienced the negative event. Response options ranged from currently experiencing the event (current age) to her age when she last experienced the event. In combination with the woman's current age, we created time since last negative event and focused exclusively on SLEs in the past year. We selected events in the past year because these events may have greater relevance as competing life events affecting the ability to continue care. We used factor analysis to group similar stressors. Five subscales of stressful events were identified using correlations of >0.30; these subscales were job stressors, partner violence, relationship stressors, housing instability, and violence/legal stressors. The items included in the subscales are presented in Table 2. A dichotomous variable for each of the five subscales was created to indicate whether any of the specific SLE within that subscale occurred in the past year. Additionally, dichotomous variables were created for each of the specific SLEs within the subscale to indicate whether that specific event occurred within the last year. We also created an indicator variable for the high-effect SLE measure that summed those events occurring in the past year that the woman was very upset by (coded as 1). Those who reported that they were not upset by the event and those not reporting the event were both grouped and coded as 0.

In addition to the indicator variables for the SLE measure, we summed the number of events reported to have occurred in the year before the study interview as a count measure. The maximum possible SLE score is 17; however, the actual range for this study was between 0 and 9 (Cronbach's $\alpha = 0.58$). We also created a high-effect SLE count score that summed those events that women indicated greatly upset them (range 0-8; Cronbach's $\alpha = 0.54$). We did not ask the effect of all events because asking a woman about how upset she was when being forced to have sex would be insensitive.

Statistical Analysis. All statistical analyses were done using SAS version 8.2 (19). Potential confounders for the association between SLE and discontinuation included age (in years), race (African-American or White), education (≤12 versus >12 years), current smoking status (yes versus former or never smoker), sexual risk-taking behavior (age at first sexual intercourse in years), current contraceptive use (by type as presented in Table 1), high-risk HPV status (positive versus negative), and baseline cervical neoplasia (low-grade squamous intraepithelial lesions versus atypical squamous cells of undetermined significance). Confounding was assessed by first determining factors associated with discontinuation (outcome), then adding confounders one at a time to the life stressors and discontinuation association and comparing the crude and adjusted estimates (20). Only age met this operational definition of a confounder and was included as a continuous variable in subsequent models. Because the outcome was not rare (>10%), we directly estimated the relative risk in SAS using Proc Freq and adjusted estimates for age. The χ^2 test statistic was used to evaluate differences in study discontinuation as the outcome and demographic factors in Table 1 and with dichotomous variables indicating ever versus never experiencing any SLE and within the five SLE subscales. Because the effect on study discontinuation may differ by specific contraceptive method, we tested the specific categories relative to no use. Stratified analysis was used to assess two effect modifiers for the SLE and discontinuation association: current smoking, as a measure of negative coping,

Table 1. Demographic and behavioral factors among study discontinuers and continuers

Factor	Discontinuers* (n = 175)	Continuers† (n = 295)	P for χ^2
Race			
White	40.6%	44.8%	0.71
African-American	59.4%	55.2%	Reference‡
Education: ≤12 y vs 12+ y	61.5%	60.0%	0.52
Current marital status			0.67
Single	62.9%	62.7%	
Divorced or separated	15.4%	14.2%	
Married	21.7%	23.1%	Reference‡
Current vs nonsmoker	30.9%	26.8%	0.64
Pap test result when referred into study			
LSIL vs ASCUS twice	74.9%	69.7%	0.36
High-risk HPV positive vs negative at baseline	25.4%	21.7%	0.29
Current contraceptive use			
Barrier method	24.0%	26.1%	0.24
Oral contraceptives	43.4%	55.9%	0.03
Norplant	7.4%	2.0%	0.004
Depo-Provera	20.6%	18.0%	0.97
No method	24.6%	17.0%	Reference‡

Abbreviations: LSIL, low-grade squamous intraepithelial lesions; ASCUS, atypical squamous cells of undetermined significance.
*Discontinuation of follow-up before the third visit.
†Continued follow-up beyond the third visit.
‡Reference group.

and depressive symptoms, as a consequence of psychosocial stressors. Because multiple SLEs were assessed, we report significant associations of at least $P < 0.01$ for specific stressful events (dichotomous SLE). The only exceptions were the age-adjusted relative risk estimates for the SLE and high-effect SLE count scores (Table 2) and the multivariate analysis with multiple SLE events included in the same model to determine which SLE was most strongly associated with study discontinuation.

Results

Study Response Rates. A total of 635 women with Pap tests indicating low-grade squamous intraepithelial lesions or atypical squamous cells of undetermined significance on two consecutive tests were referred into this study; 94.3% (601) agreed to participate in follow-up of the abnormal test at 4- to 6-month intervals over a 2-year period. Of the 601 women enrolled in the study, 556 (90.8%) completed baseline interviews. We excluded 53 women who had high-grade squamous intraepithelial lesions at baseline and were referred out of the study and 24 who were pregnant or had another medical condition that precluded study follow-up. In addition, nine women moved out of the area before the second visit. The final sample size was 470.

Discontinuation Rates and Correlates. Among 175 women who discontinued follow-up before the third study visit (37.2%), 116 (24.7%) were lost between the first and second visit and 59 (12.6%) were lost between the second and third visit. The average follow-up period was 15.4 ± 8.1 months (data not shown).

Women who discontinued participation were on average 2 years younger (mean ± SD = 23.5 ± 6.1) than those who continued (25.5 ± 6.7; P = 0.002). After adjusting for age, discontinuers did not differ significantly from continuers in their age at first intercourse or number of partners (data not shown). The distribution of demographic and behavioral risk

Table 2. SLEs and study discontinuation rates; age adjusted relative risk estimates and 95% CI

Event	No. (%) reporting SLE at baseline	Percentage discontinued follow-up within SLE strata	Relative risk estimate for study discontinuation and	
			SLE	High-effect SLE
Any SLE reported	354 (75.3%)	41.8%	1.5 (1.1-2.2)	1.4 (1.1-1.7)
No SLE reported	116 (24.7%)	23.3%	1.0 (Reference)	1.0 (Reference)
Specific events within domains				
Job stressors				
Any job stressors event	121 (25.7%)	45.5%	1.4 (1.1-1.8)	1.6 (1.1-2.1)
Problem with boss	69 (14.7%)	50.7%	1.9 (1.5-2.4)	2.0 (1.6-2.5)
Woman fired from job	38 (8.1%)	39.5%	1.1 (0.7-1.6)	0.9 (0.4-2.4)
Partner fired from job	33 (7.0%)	39.4%	1.1 (0.7-1.7)	1.0 (0.5-2.1)
Partner violence				
Any partner violence event	103 (21.9%)	46.6%	1.5 (1.2-1.9)	1.4 (1.1-1.9)
Verbal abuse by partner	77 (16.4%)	40.3%	1.4 (1.0-1.8)	1.3 (0.9-1.8)
Severe physical partner violence*	52 (11.1%)	55.6%	1.7 (1.3-2.2)	1.7 (1.3-2.2)
Forced sexual intercourse	9 (1.9%)	66.7%	1.8 (1.2-2.7)	NE
Relationship stressors				
Any relationship event	200 (42.6%)	42.5%	1.2 (0.9-1.5)	1.2 (0.9-1.5)
Increasing number of arguments	125 (26.6%)	40.0%	1.1 (0.8-1.5)	1.2 (0.9-1.6)
Divorce	24 (5.1%)	29.2%	1.1 (0.7-1.9)	0.6 (0.1-3.0)
Infidelity	109 (23.2%)	44.0%	1.3 (1.0-1.7)	1.4 (1.0-1.8)
Housing instability				
Any housing instability	204 (43.4%)	46.6%	1.3 (1.0-1.7)	1.6 (1.2-2.0)
Homeless	14 (3.0%)	78.6%	2.1 (1.6-2.8)	2.0 (1.4-2.9)
Move back with parents	67 (14.3%)	43.3%	1.3 (0.9-1.7)	1.3 (0.8-2.0)
Moved	152 (43.4%)	46.6%	1.3 (1.0-1.7)	1.5 (1.0-2.2)
Unplanned pregnancy	48 (10.2%)	50.0%	1.5 (1.2-2.1)	1.8 (1.3-2.4)
Violence/legal stressors				
Any violence	124 (26.4%)	41.1%	1.2 (0.9-1.5)	1.3 (0.9-1.8)
Partner arrested	62 (13.2%)	45.2%	1.3 (0.9-1.7)	0.8 (0.4-1.6)
Woman arrested	37 (7.9%)	40.5%	1.1 (0.7-1.6)	1.3 (0.8-2.1)
Physical violence by someone other than partner	15 (3.2%)	33.3%	0.9 (0.4-1.9)	1.1 (0.6-2.2)
Woman robbed	46 (9.8%)	39.1	1.1 (0.7-1.5)	1.0 (0.6-1.7)

Abbreviation: NE, not estimatible.
*Defined as being beaten up by an intimate male partner.

factors for those who continued in the cohort for at least three visits (continuers) relative to those who did not (discontinuers) are provided in Table 1. Women using Norplant at the beginning of follow-up were significantly more likely to discontinue follow-up.

Any SLE and Study Discontinuation. Table 2 presents the analysis of the association between study discontinuation and the SLE indicator variables. The proportion of the cohort reporting a SLE is presented as well as the percentage of women in the SLE strata who discontinued study participation. Two sets of age-adjusted relative risk estimates are provided for study discontinuation and the indicator variables for (*a*) each SLE by subscale and (*b*) each high-effect SLE. Within the entire cohort, 75.3% experienced one of the 17 SLEs in the past year. The study discontinuation rate was 41.8% among those experiencing one or more SLEs and 23.3% among those experiencing no SLE. Experiencing any SLE in the past year was associated with an increased risk of study discontinuation (Table 2). Similarly, reporting that any of the 17 SLEs greatly upset the woman was associated with an increased risk of study discontinuation.

SLE Subscales and Study Discontinuation. Table 2 presents the five subscales with the specific events that make up the subscale following the subscale heading. The following subscales (see Table 2) were associated with an increased risk of study discontinuation: job stressors ($P = 0.006$), partner violence ($P = 0.02$), and housing instability ($P = 0.007$; high-effect SLE count score).

Specific SLE and Study Discontinuation. The following specific events were associated with an increased risk of study discontinuation: problem with a boss ($P = 0.007$), severe physical partner violence ($P = 0.003$), and being homeless ($P = 0.001$). The association between study discontinuation and having an unplanned pregnancy was stronger for those who were upset by an unplanned pregnancy (high-effect SLE count score, 0.007) than those experiencing the event ($P = 0.05$). Given the correlation between these specific events, all four events were included in one logistic regression model. Three of the four specific SLEs remained significantly associated with study discontinuation ($P < 0.01$), including having problems with a boss (aRR, 2.0; 95% CI, 1.2-3.5), being homeless (aRR, 7.0; 95% CI, 1.8-26.6), and being upset by an unplanned pregnancy (aRR, 2.5; 95% CI, 1.2-5.5), whereas severe physical partner violence was not statistically significant (aRR, 1.9; 95% CI, 1.0-3.5; data not shown).

Number of SLEs (Continuous Count Scores) and Study Discontinuation. In addition to the analysis presented in Table 2, the association between study discontinuation and the count of the number of SLE (scores) were evaluated. SLE scores were higher among those discontinuing study participation (mean, 2.50; SD, 2.01) compared with those continuing participation (mean, 1.84; SD, 1.91; $P = 0.011$).

Number of High-Effect SLEs (Continuous Count Scores) and Study Discontinuation. Using the count of high-effect SLE measure, increasing numbers of high-effect SLE reported (mean, 1.26; SD, 1.42) were associated with an increased risk of study discontinuation (mean, 0.97; SD, 1.43; $P = 0.047$).

Do Negative Coping Behaviors Modify the Effect of SLE on Study Discontinuation? We evaluated current cigarette smoking, an indicator of negative coping, as an effect modifier for the count SLE score (continuous count score) and study discontinuation. The association was statistically significant among nonsmokers (aRR, 1.19; 95% CI, 1.04-1.36; $n = 133$) but not among current smokers (aRR, 1.09; 95% CI, 0.93-1.28; $n = 334$). When similarly evaluating current depressive symptom status as an effect modifier for the same association, we found that this association was statistically significant among those without depressive symptoms (aRR, 1.24; 95% CI, 1.09-1.41; $n = 352$) yet not among those with depressive symptoms (aRR, 0.99; 95% CI, 0.83-1.18; $n = 118$).

Discussion

Several studies suggest that sexual and physical violence against women may be linked to an increased risk of cervical neoplasia (12, 21, 22). Further, psychological distress may be associated with cervical neoplasia development (23-26). Traumatic life events, such as becoming homeless or experiencing severe partner violence, may be viewed as competing life priorities that supersede a woman's ability to cope with and seek care for an abnormal Pap test. In the context of these life stressors, addressing an asymptomatic abnormal Pap test may not be a priority. These women may be less likely to receive timely care for an abnormal Pap test and may therefore be at risk of developing a more severe cervical lesion, including cervical cancer. These competing events may indirectly affect study continuation by diverting a woman's ability to prioritize her own health. Our finding that severe physical partner violence was associated with study discontinuation was consistent with findings from qualitative studies indicating that partners may influence the likelihood of receiving follow-up care by discouraging follow-up care or threatening physical violence (12, 13). Severe physical partner violence may also be correlated with study discontinuation if women experiencing abuse have physical signs, such as bruises or cuts, which they wish to hide from health care providers and therefore discontinue care.

We report results supporting the indirect mechanism by which psychosocial stressors, measured as number of SLEs in the year before study recruitment, may increase study discontinuation and possibly high-grade cervical neoplasia development (the latter was not measured in the current study). Although our model hypothesized that negative coping behaviors, such as smoking or depressive symptoms, might modify the effect of increasing SLE scores on study discontinuation, we found no evidence to support this hypothesis in the direction we hypothesized. SLEs were associated with discontinuation only among those without depressive symptoms and among nonsmokers. If stressors are in fact linked to study discontinuation (our proxy for not receiving complete follow-up care), it does not seem to act through these two potential modifiers or not in the hypothesized direction. Our study may not be adequately powered to address these interactions given the small number of smokers and those with depressive symptoms. Further, current cigarette smoking and depressive symptoms may not be appropriate indicators of negative coping behaviors or strategies. This possible misclassification limits our ability to test the role of coping, stress, and study discontinuation.

As with most observational studies, this study has limitations that deserve mention. This study of 470 women who began the cohort with low-grade cervical lesions has limited study power to identify associations between study discontinuation and uncommon life events, such as sexual assaults. Study power to detect a relative risk of 1.5 in this study ranged from 25% to >95% depending on the prevalence of the event (10%) and the strength of the measure of association (minimum aRR, 1.5). We do not have data on the reasons for dropping out of the study from women who discontinued follow-up care. Although difficult to obtain, this information would have been useful in verifying whether SLEs were the reason for study discontinuation. Future qualitative studies to confirm this inference would be an important contribution to this emerging literature. Similarly, future studies that include other measures of traumatic events, competing life priorities, daily hassles, coping skills, domains and sources of support, and personality profiles may be useful in understanding factors that place some women at risk of not receiving follow-up care.

To more completely test our conceptual model, additional studies are needed to address both the indirect and direct mechanisms by which psychosocial stress may affect cervical neoplasia development. Because the conceptual model posits that psychosocial stress may result in cervical neoplasia through immunosuppression, biological markers of immune function are important to address this proposed direct mechanism.

Other models may provide further insight into whether and how stress may affect receipt of follow-up care for an abnormal Pap test. The unified theory of behavior proposed by Jaccard et al. (27) and adapted by Breitkopf et al. (13) suggests that individual constructs of attitude, normative influences, expectancies, self-concept, affective responses, and self-efficacy influence the intermediate constructs of knowledge, motivation, environmental constraints, and salience. These intermediate constructs directly influence adherence behavior that can be measured as continuing to receive follow-up care. This theory could be applied to better understand the individual's role in perceiving and managing stress, coping effectively, and receiving timely care. In addition to studies addressing the individual behavioral processes affecting receipt of follow-up of patients, studies are also needed to explore the role of health care providers in addressing psychosocial factors that may affect patients' ability to receive timely follow-up care.

Our finding that SLEs are associated with discontinuing receipt of follow-up care may have relevance for both researchers and clinicians. Loss to follow-up is an important selection bias for prospective studies. Researchers attempting to conduct these prospective studies should consider and, to the extent possible, address psychosocial factors in the recruitment and follow-up of subjects. Implications of this study for clinicians attempting to bring women with abnormal Pap tests in for follow-up care include asking about significant life events, and, if possible, working with women to overcome these life challenges. Alternatively, clinicians may screen for homelessness and partner violence in their patients to identify those patients who may have difficulty returning to the clinic to receive follow-up care. These patients may be better served by immediate therapy for cervical neoplasia despite the possibility that this care may not be necessary if the patient was able to return at regular intervals for careful monitoring.

Clinical interventions to link women experiencing SLEs with services are an important source of emotional support. This linkage is a direct indication to the woman that the clinician cares about her by asking about life challenges and seeking, with her consent, to help her address these challenges (28). Simple interventions have been developed and have shown improvement in patient outcomes and financial benefits for the clinician by reducing ''no show'' rates and the associated time and expense of attempting to contact these no shows (4, 29-34). One study that directly addressed mental health issues of women found that the intervention improved follow-up care rates for women with abnormal Pap tests (35). Such interventions may prove a financial benefit to society in general and specifically for women as the incidence of high-grade squamous intraepithelial lesions and the associated increased cost of care may be reduced if women receive careful follow-up for less severe lesions.

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