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**Adverse Impact of a History of Violence for Women with Breast, Cervical, Endometrial, or Ovarian Cancer****Notes/Citation Information**

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# Adverse Impact of a History of Violence for Women With Breast, Cervical, Endometrial, or Ovarian Cancer

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**OBJECTIVE:** The experience of physical and sexual violence (victimization) is common among U.S. women and is associated with adverse health consequences. The study objectives were to estimate the prevalence of victimization in women with cancer and to examine associations with demographics, cancer screening, and cancer stage.

**METHODS:** From 2004 to 2005, 101 women with breast, cervical, endometrial, or ovarian cancer were interviewed to collect demographics, cancer screening history, health care access/use, and violence history. Chi-square and Fisher exact tests were used to test risk-factor associations. A multinomial logistic regression model was used for multivariable analysis.

**RESULTS:** The prevalence of a history of violence was 48.5% (49/101 women), and within that group, 46.9% (23/49) had a positive childhood violence screen, 75.5% (37/49) had a positive adult screen, and 55% (27/49) reported sexual violence at any age. Women with a positive violence screen differed significantly from women with a negative screen in that they were younger

( $P = .031$ ), more often divorced ( $P = .012$ ), more likely to smoke ( $P = .010$ ), more often lacked commercial insurance ( $P = .036$ ), and had more advanced stage of disease ( $P = .013$ ), but they did not differ with regard to race, cancer type, education level, alcohol or drug use, or cancer screening compliance. Multivariable analysis revealed that only stage remained significant; women with a history of violence had a 2.6-fold increased chance of diagnosis in later stages (odds ratio 2.61, 95% confidence interval 1.03–6.59).

**CONCLUSION:** A history of violence in breast, ovarian, endometrial, and ovarian cancer patients was extremely common and correlated with advanced stage at diagnosis. (*Obstet Gynecol* 2006;107:1330–6)

**LEVEL OF EVIDENCE:** II-2

Violence in the form of intimate partner victimization remains an extremely common experience among women, with a lifetime prevalence rate of approximately 25% of females in the United States.<sup>1–3</sup> Physical and sexual victimization inflicted on women has multisystemic short- and long-term health effects.<sup>4</sup> Most immediately, women may sustain acute injuries as evidenced by emergency room studies showing that one third of women seeking emergency medical care for violence-related injuries have been injured by a current or former spouse.<sup>5</sup> In addition to acute injury, there are documented chronic health effects of violence toward women. Headaches, back pain, fainting, seizures or related central nervous system complaints, chronic pain, irritable bowel syndrome, pelvic inflammatory disease, persistent skin disorders, and adverse pregnancy outcomes have all been found to be associated with intimate partner victimization.<sup>2,6–16</sup>

Not surprisingly, gynecologic issues make up a frequent source of medical problems in women victimized by violence. These include sexually transmit-

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ted diseases, vaginal bleeding, pelvic pain, and urinary tract infections.<sup>2,8,15,17,18</sup> Gynecologic symptoms have been found to be most severe among women whose abuse history includes sexual victimization, and studies find that sexual assault often results in sexually transmitted diseases, urinary tract infections, hemorrhoids, and other genitourinary tract problems.<sup>3,19,20</sup> Additionally, young girls who were sexually abused will more commonly acquire genital human papillomavirus (HPV) infection, potentially leading to development of both cervical dysplasia and cervical cancer.<sup>21,22</sup> Likewise, intimate partner violence in adults has also been associated with an increased risk of both invasive cervical cancer and preinvasive cervical dysplasia.<sup>23</sup>

Although there is extensive literature on the health problems experienced by women with victimization histories, there is very limited research on the association of violence with cancer detection and treatment or cancer related outcomes. One large study investigated over 9,500 people for a history of childhood abuse (including psychological, physical, or sexual abuse, witnessing violence against the mother, or living with household members who were substance abusers, mentally ill, or imprisoned) and found that there was a significant dose-response curve between the number of childhood exposures and subsequent diagnosis of a number of significant adverse health events, including cancer.<sup>24</sup> Although exposure to HPV might explain an increased rate of cervical dysplasia and, potentially, cervical cancer, it is unclear what other factors might play a role in the increased rates of other cancers.

Many of the issues listed above are crucial to our understanding of the long-term health consequences of violence against women and its potential link to cancer, but the first step in trying to elucidate the relationship is to begin to define it. Specifically, the objectives of this study were threefold. The first objective was to estimate the prevalence of past and current victimization and to compare demographic characteristics between women with and those without a history of victimization. The second objective was to examine the association between victimization history and use of cancer screening programs. The third objective was to examine the associations of a history of violence with cancer stage at diagnosis in this sample of oncology clinic patients.

## MATERIALS AND METHODS

This study was approved by the Medical Institutional Review Board at the University of Kentucky. Women were recruited as a convenience sample from the

Gynecologic Oncology and Breast Oncology clinics of the Markey Cancer Center of the University of Kentucky from April 2004 to August 2005. Inclusion criteria included diagnosis of breast, cervical, endometrial, or ovarian cancer (either in surveillance or active treatment) and age over 18. Each woman signed an informed consent before participating in the interview on health history and victimization. Before entry into the study, there was no knowledge on the part of the interviewers about violence history or medical history other than type of cancer. Participants were paid \$25.00 after completion of the study.

Interviews were conducted in a private setting with just the participant and a female interviewer (one of the authors—S.C.M., H.M.C., or A.C.G.—or one research assistant). The interview lasted approximately 30 minutes, and the following self-reported information was collected: age, ethnicity, marital status, education, income, occupation, transportation, Pap test history, mammogram history, colon cancer screening history, reproductive and sexual history, smoking, alcohol use, recreational drug use, health care access and use, insurance and medical care (public health, private, emergency room) before diagnosis of cancer, medical history, family history of cancer, and history of violence/victimization. For the purposes of this study, *violence* was defined to include an experience of either physical assault or sexual victimization but not perpetration of violence. The violence screening questions for physical or sexual victimization were adapted from the National Violence Against Women Survey.<sup>25</sup>

Data were analyzed with SPSS 13.0 (SPSS Inc, Chicago, IL) statistical analysis software. Chi-square tests (and Fisher exact test where appropriate) were used to test the association between risk factors, and independent *t* tests were used to compare means. Univariable and multivariable analyses were performed with a multinomial logistic regression model<sup>26</sup> and  $\chi^2$  tests. A history of violence was the dependent variable of interest. For all tests,  $P < .05$  was deemed statistically significant.

## RESULTS

One hundred one women were enrolled and completed the study, and they were nearly equally divided among the 4 cancer types (1 additional breast cancer patient was enrolled). A total of 125 women were approached for participation, for a recruitment success rate of 81%. The lifetime prevalence of a history of violence for the entire group was 48.5% (49/101 women; Tables 1 and 2). Looking more closely at the 49 women who had a positive violence



**Table 1. Comparison of Demographics in Women With and Those Without a History of Violence**

Factor	Positive Violence (n = 49)	Negative Violence (n = 52)	P
Mean age (y)	50.4	55.8	.031
Age distribution			
≤ 50	23	17	.143
> 51	26	35	
Race			
White	45	51	.148
Black	4	1	
Marital status			.012
Never married	3	3	
Currently married	20	37	
Divorced	19	7	
Widowed	7	5	
Highest level of education			.077
≤ High school	33	26	
> High school	16	26	
Insurance*			.036
Insured (commercial)	27	39	
Medicaid/Medicare/none	22	13	
Smoking status			.010
Never a smoker	25	24	
Past smoker	9	22	
Current smoker	15	6	
Alcohol use			.915
Never used	26	28	
Past use	14	16	
Current use	9	8	
Type of cancer			.732
Breast cancer	11	15	
Cervical cancer	14	11	
Endometrial cancer	11	14	
Ovarian cancer	13	12	
Tumor stage			.013
Early stage (I–II)	21	35	
Late stage (III–IV)	28	17	

\* Commercial insurance category includes all women with commercial insurance (15 women also had supplemental Medicare). A total of 7 women lacked insurance.

screen, 46.9% (23/49) had a positive childhood violence screen, and 75% (37/49) had a positive adult screen. For both the child and adult violence screening questions, there were 7 possible affirmative answers, and the mean number of positive responses was higher for adult violence (mean 2.69, range 0–7) than for childhood violence (mean 0.98, range 0–4). Of the women with a positive violence screen, 55% (27/49) reported sexual violence. Subjects were also asked to quantify the number of incidents (none, 1, 2–10 or > 10 events), and more often, these were not isolated violent events. Violence within the last year was also assessed (Table 2); only 2 patients had any episode within the year of study completion (both reported to be in safe situations at the time of disclosure per the human subjects portion of the interview protocol).

Women with and those without a positive vio-

lence screen were compared (Table 1) and found to differ significantly with regard to mean age, ( $P = .031$ ), marital status ( $P = .012$ ), smoking ( $P = .010$ ), insurance ( $P = .036$ ), and stage of disease ( $P = .013$ ), but they did not differ with regard to race, cancer type, education level, and alcohol or drug use. Specifically, women with a history of violence were younger, and more of these women were divorced, smoked, and lacked commercial insurance when compared with women without a history of violence.

Furthermore, more women who disclosed a history of childhood or adult violence were diagnosed at advanced stages of disease, despite equivalent adherence to recommended cancer screening protocols for breast, cervical, and colon cancer. Of note, overall compliance for breast, cervical, and colon cancer screening tests was low at 56%, 55%, and 36%, respectively for the at-risk population, but this did not



**Table 2. Specifics of Violent Experiences for Women With a Positive Violence Screen (n = 49)**

	n (%)
Childhood violence	
Negative violence screen	26 (53.1)
Positive violence screen	23 (46.9)
Mean score (range)*	0.98 (0–5)
Adult violence	
Negative violence screen	12 (24.5)
Positive violence screen	37 (75.5)
Mean score (range)*	2.69 (0–7)
Sexual violence	
Negative sexual violence screen	22 (44.9)
Positive sexual violence screen	27 (55.1)
Mean score (range)†	1.10 (0–4)
Frequency of violence as a child‡	
None	24 (49)
One event	7 (14.3)
2–10 events	5 (10.2)
> 10 events	13 (26.5)
Frequency of violence as an adult‡	
None	8 (16.3)
One event	11 (22.4)
2–10 events	12 (24.5)
> 10 events	18 (36.7)
Frequency of violence in the past year‡	
None	47 (95.9)
One event	0 (0)
2–10 events	1 (2.0)
> 10 events	1 (2.0)

\* The mean score is the average number of positive responses for a total of 7 questions asked.

† The mean score is the average number of positive responses for a total of 5 questions asked.

‡ Includes both violence or sexual violence, so numbers are higher than the violence-alone data.

differ significantly from the women without a history of violence (Table 3). Compliance was defined as adhering to annual Pap test (after sexual activity), annual mammograms after age 40, and colonoscopy after age 50. Use of health care was compared between women with and those without a history of violence. Although the mean number of physician visits per year before the diagnosis of cancer was slightly lower in the women with a positive violence history, this was not statistically significant (mean 2.05 versus 2.98;  $P = .137$ ). Women with a positive victimization history, however, were more likely to report either not seeing a physician or having relied on only an emergency room physician in the year before their cancer diagnoses (18.4% versus 3.8%;  $P = .019$ ).

Multivariable analysis of the factors found to be significantly associated with violence on univariable analysis (age, marital status, insurance, tobacco use,

and tumor stage) showed that only the stage of disease remained a significant factor. Women with a history of violence had a 2.6-fold increased chance of being diagnosed in later stages (odds ratio 2.61, 95% confidence interval 1.03–6.59), whereas neither age, insurance type, tobacco use, or marital status were still significant (Table 4).

## DISCUSSION

Violence against women is a pervasive problem that crosses racial and socioeconomic boundaries, and its impact on women's health is slowly being elucidated. In U.S. women the lifetime prevalence of intimate partner violence is estimated at 25%, and the prevalence of any history of violence is as high as 55%.<sup>25</sup> Unfortunately, it is often a silent problem because women are reluctant to volunteer such information to physicians, and conversely, physicians often are reluctant to ask women about violence. In fact, numerous studies document inadequate screening among physicians for current or historic victimization in their female patients, and in turn, poor screening results in a lack of detection of victimization.<sup>27–31</sup> Our study of women with breast, cervical, endometrial, or ovarian cancer revealed that half of these women have been victims of childhood or adult violence and demonstrated that such a history was associated with more advanced stage at diagnosis. This preliminary finding suggests an even greater need for physicians to explore victimization in all phases of health care to encourage patients to pursue screening or diagnostic assessment for possible cancers to promote earlier intervention. Although universal screening for violence is certainly stressed in the primary care well-woman exams or in prenatal care visits, the prevalence of violence history in this sample of cancer patients is considerably higher than the rates (15–40%) previously reported in these other populations<sup>11,32–34</sup> and should encourage oncologists to screen all of our patients for violence.

Previous research suggested that women with a positive violence history may have increased rates of cancer, but there has been limited research in the women's cancer patient population.<sup>23,24</sup> The literature suggests that cancer may go undetected because of lower rates of health care use among women with victimization. For example, 1 in 3 women with health problems from victimization had problems with access to health care in the past year—a number twice that of women without similar abuse experiences.<sup>35</sup> The women in our study who disclosed victimization more frequently were diagnosed with advanced cancer, and this finding continued to be significant on



**Table 3. Screening Compliance and Health Care Use in Women With and Those Without a History of Violence**

Factor	Positive Violence (n = 49)	Negative Violence (n = 52)	P
Number of yearly physician visits prior to cancer	2.05	2.98	.137
Type of physician seen			.019*
None or ER visit only	9	2	
Family practice	24	26	
Internal medicine	2	2	
Obstetrics-gynecology	5	8	
More than one (FP, IM, or ob-gyn)	9	14	
Mental health treatment			.529
Yes	20	18	
No	29	34	
Compliance with screening			
Mammogram <sup>†</sup>			.188
Yes	17	29	
No	19	18	
Pap test			.062
Yes	23	34	
No	26	18	
Colonoscopy <sup>‡</sup>			.711
Yes	9	14	
No	18	23	

ER, emergency room; FP, family practice; IM, internal medicine; ob-gyn, obstetrics-gynecology.

\* Comparing women with None or ER-only to women with an identified physician.

<sup>†</sup> For women  $\geq$  40 years (n = 83).

<sup>‡</sup> For women  $\geq$  50 years (n = 64).

**Table 4. Multivariable Analysis of Factors Correlating With a Positive Violence History**

Factors	AHR for Any Violent Event (95% CI)	P
Age		.220
$\leq$ 50	Reference	
$>$ 50	0.526 (0.188–1.469)	
Tobacco use		.248
Past use	Reference	
Current use	0.323 (0.082–1.278)	
Never used	0.622 (0.187–2.065)	
Marital status		.071
Widowed	Reference	
Never married	0.262 (0.025–2.770)	
Currently married	0.385 (0.91–1.628)	
Divorced	1.555 (0.326–7.410)	
Stage		.040
Stage I–II	Reference	
Stage III–IV	2.606 (1.031–6.587)	
Insurance*		.364
Commercial	Reference	
None/Medicaid/Medicare	1.567 (0.594–4.132)	

AHR, adjusted hazard ratio; CI, confidence interval.

\* Commercial insurance category includes all women with commercial insurance (15 women also had supplemental Medicare). A total of 7 women lacked insurance.

multivariable analysis. Possible explanations for these results could include decreased access to health care providers, decreased adherence to recommended

cancer screening, or potentially, increased stress and compromised immune function. Our data supported some potential barriers to health care since more women with abuse lacked commercial insurance and were divorced compared with the women without abuse. Although we did not identify a significant difference in the number of physician visits, we did find that women with a history of violence were more likely to rely on emergency department or urgent treatment visits, which may not include routine comprehensive physical assessment or promote cancer screening programs. The analysis of insurance, marital status, and screening behaviors did not explain the differences that were noted in stage of presentation.

This study had limitations that included reliance on patient self-reports of victimization and health care use. Although self-reports have been studied and have established validity, there are possible concerns about the accuracy of recall. In addition, this study used limited screening questions and did not examine the specific victimization experiences or the severity of victimization. This was also a convenience sample of female cancer patients in Kentucky who are being treated in a university setting and may not be representative of the nation as a whole. However, even with these limitations, this study advances awareness of the potential role that victimization may play in



cancer screening use and follow-up treatment among women.

Future research should examine the specific health use pathways followed by women with violent experiences to better understand the relationship of victimization, health conditions, and health care outcomes. Additionally, further examination of how detection of serious health problems, such as cancers, can occur earlier and thus potentially improve outcomes for women with a history of victimization is warranted. Lastly, the physical effects of violence and potential links to biologic tumor pathways merit exploration. This study, along with previous data, underscores the importance of careful screening for victimization in the health care setting. Future research should clarify how physicians can better identify patients with victimization and improve detection and treatment of cancer in affected populations.

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