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

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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 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.$^{1-3}$ Physical and sexual victimization inflicted on women has multisystemic short- and long-term health effects.$^4$ 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.$^5$ 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.$^{2,6-16}$

Not surprisingly, gynecologic issues make up a frequent source of medical problems in women victimized by violence. These include sexually transmit-
tered diseases, vaginal bleeding, pelvic pain, and urin-
ary tract infections.\textsuperscript{2,8,15,17,18} 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 prob-
lems.\textsuperscript{3,19,20} Additionally, young girls who were sexu-
ally abused will more commonly acquire genital
human papillomavirus (HPV) infection, potentially
leading to development of both cervical dysplasia and
cervical cancer.\textsuperscript{21,22} Likewise, intimate partner vio-
ence in adults has also been associated with an
increased risk of both invasive cervical cancer and
preinvasive cervical dysplasia.\textsuperscript{23}

Although there is extensive literature on the
health problems experienced by women with victim-
ization 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 ad-
verse health events, including cancer.\textsuperscript{24} 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 with-
out 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, endo-
metrial, 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 approxi-
mately 30 minutes, and the following self-reported
information was collected: age, ethnicity, marital sta-
tus, 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 diag-
nosis 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 Vio-
ence Against Women Survey.\textsuperscript{25}

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 per-
formed with a multinomial logistic regression model\textsuperscript{26}
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 com-
pleted the study, and they were nearly equally di-
vided 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
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 violence 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 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.
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%.\(^25\) 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.\(^{27–31}\) 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\(^{11,32–34}\) 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.\(^{23,24}\) 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.\(^{35}\) The women in our study who disclosed victimization more frequently were diagnosed with advanced cancer, and this finding continued to be significant on
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

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

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

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.
† For women ≥ 40 years (n = 83).
‡ For women ≥ 50 years (n = 64).

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

<table>
<thead>
<tr>
<th>Factors</th>
<th>AHR for Any Violent Event (95% CI)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>.220</td>
<td></td>
</tr>
<tr>
<td>≤ 50</td>
<td>Reference</td>
<td></td>
</tr>
<tr>
<td>&gt; 50</td>
<td>0.526 (0.188–1.469)</td>
<td></td>
</tr>
<tr>
<td>Tobacco use</td>
<td>.248</td>
<td></td>
</tr>
<tr>
<td>Past use</td>
<td>Reference</td>
<td></td>
</tr>
<tr>
<td>Current use</td>
<td>0.323 (0.082–1.278)</td>
<td></td>
</tr>
<tr>
<td>Never used</td>
<td>0.622 (0.187–2.065)</td>
<td></td>
</tr>
<tr>
<td>Marital status</td>
<td>.071</td>
<td></td>
</tr>
<tr>
<td>Widowed</td>
<td>Reference</td>
<td></td>
</tr>
<tr>
<td>Never married</td>
<td>0.262 (0.025–2.770)</td>
<td></td>
</tr>
<tr>
<td>Currently married</td>
<td>0.385 (0.191–1.628)</td>
<td></td>
</tr>
<tr>
<td>Divorced</td>
<td>1.555 (0.326–7.410)</td>
<td></td>
</tr>
<tr>
<td>Stage</td>
<td>.040</td>
<td></td>
</tr>
<tr>
<td>Stage I–II</td>
<td>Reference</td>
<td></td>
</tr>
<tr>
<td>Stage III–IV</td>
<td>2.606 (1.031–6.587)</td>
<td></td>
</tr>
<tr>
<td>Insurance*</td>
<td>.364</td>
<td></td>
</tr>
<tr>
<td>Commercial</td>
<td>Reference</td>
<td></td>
</tr>
<tr>
<td>None/Medicaid/Medicare</td>
<td>1.567 (0.594–4.132)</td>
<td></td>
</tr>
</tbody>
</table>

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.
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. 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.

REFERENCES

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