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Original Contribution

Intimate partner violence and mental health symptoms in African American female ED patients☆

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Abstract

Background: Intimate partner violence (IPV) victims often seek care in the ED, whether for an injury from abuse or other sequelae such as mental health symptoms.

Objectives: The objective of the study was to assess whether depressive symptoms, posttraumatic stress disorder (PTSD), and suicidality were associated with physical, sexual, or emotional IPV in African American female ED patients and to determine if experiencing multiple types of abuse was associated with increased mental health symptoms.

Methods: All eligible African American female patients were approached in the ED waiting room during study periods. Patients participated in the screening process via a computer kiosk. Questions regarding IPV and mental health symptoms were asked using validated tools.

Results: In this prospective cohort, 569 participated and 36% of those in a relationship in the past year (n = 461) disclosed that there were victims of IPV in the past year. In the past year, 22% experienced recent physical abuse, 9% recent sexual abuse, and 32% recent emotional abuse. A Pearson correlation was conducted and showed that all mental health symptoms were positively correlated with each type of IPV and each type of mental health symptom category. Mental health symptoms increased significantly with amount of abuse: depression (odds ratio [OR], 5.9 for 3 types of abuse), PTSD (OR, 9.4 for 3), and suicidality (OR, 17.5 for 3).

Conclusions: Emotional, sexual, and physical IPV were significantly associated with mental health symptoms. Each type of abuse was independently associated with depression, suicidality, and PTSD. Experiencing more than 1 type of abuse was also correlated with increased mental health symptoms.

1. Introduction

Each year, nearly 5.3 million intimate partner victimizations occur among women 18 years and older [1]. This violence results in approximately 2 million injuries and 1300 deaths [1]. A recent population-based study revealed

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that 29% of American women have experienced physical, sexual, or psychological intimate partner violence (IPV) in their lifetime [2]. In addition, many victims of IPV present to EDs with injuries or for treatment of medical and/or psychological complaints that are directly related to IPV [3]. Abbott and colleagues [3] reported that 54% of the female ED patients they studied had been victims of IPV at some point in their lifetimes and 12% were current victims.

Intimate partner violence affects individuals from all ethnic groups, but intimate partner femicide and near-fatal assaults of intimate partners are particularly common among African American women [4]. The National Crime Victimization Survey revealed that self-reported rates of IPV are highest among African American women and women in lower-income categories and women 16 to 24 years of age [5]. Cunradi et al [6] reported that neighborhood poverty is associated with an increased risk of IPV, particularly among African Americans. Some studies have suggested that African Americans are more likely than people from other ethnic groups to experience severe injuries [7] and to report IPV to the authorities [8].

Intimate partner violence may involve emotional, physical, and/or sexual abuse. As a result, IPV victims not only seek medical care for injuries, they may often seek medical care for treatment of illnesses and sequelae of their abuse. Caetano and coworkers [9] observed that 31% of female African American IPV victims were depressed, compared with 14% of white IPV victims. Kaslow et al [10] found that both physical and nonphysical IPV are risk factors for suicide attempts among African American women. In addition, several studies have suggested an additive effect of abuse on mental health symptoms [11,12].

Recently, Rhodes and colleagues [13] at the University of Chicago installed a computer kiosk in their ED waiting room and assessed its utility as a tool to allow patients to self-report risk factors and receive health promotion information in return. Rhodes reported that the use of this computer screening dramatically increased patient self-disclosure and therefore health care worker recognition of IPV [14]. Because computer screening seems to offer a simple and unobtrusive way to assess risk factors for IPV and other health problems in an ED population, we decided to use this approach to study the potential relationship between IPV and mental health symptoms among African American women seeking health care in an inner-city ED.

The objective of the study was to determine if IPV is associated with depressive symptoms, PTSD symptoms, or suicidality and to determine if the type or amount of IPV is associated with specific mental health symptoms. We hypothesized that IPV would be significantly associated with depressive symptoms, PTSD symptoms, and suicidality and that experiencing multiple types of abuse would be associated with increased mental health symptoms.

2. Methods

2.1. Study design

This was a prospective cohort study of African American female ED patients who self-reported IPV on a computer kiosk. We compared these patients with those who screened negative for IPV with respect to mental health symptoms.

2.2. Selection of participants and setting

The study site is the only public hospital and level I trauma center in a large southeastern city. The hospital is staffed by faculty and residents of 2 medical schools. Approximately 90% of the patients who visit the ED of this hospital are African American, and many are from impoverished or low-income households. The ED treats 105 000 patients per year. The institutional review board of our university and the hospital's research oversight committee both approved this study.

All African American female patients between the ages of 18 and 55 years were approached in the ED waiting room during set study times (Monday-Wednesday 12-8 PM—high-volume hours). Potential participants were identified by reviewing the ED patient registration log. Participants had to be able to speak and read English at a fifth-grade level, not be intoxicated or acutely psychotic, not acutely ill or severely injured, and stand for 20 minutes to complete the study.

2.3. Data collection and processing

Trained and supervised research assistants were present in the waiting room during study periods to identify and approach potential participants. All patients who were in the waiting room who potentially fit the selection criteria were approached and taken to a semiprivate booth in the waiting room to obtain informed consent. Participants were told that this was a study about "women's health issues." Participants answered survey questions on a touch-screen computer kiosk in a private booth in the ED. Questions related to IPV, depressive symptoms, PTSD symptoms, and suicidality were asked using validated tools. Information regarding demographics, illness history, smoking, exercise patterns, and the subject's living situation was also collected. Patients would stop the survey during the computer screening process if they were called to see the physician, if they became too sick, or if they chose to stop the screening. All patients received a list of resources for each type of mental health symptom or health risk factor that they disclosed. In addition, any patient who disclosed active suicidality was sent to the ED for immediate evaluation. Data were entered in SPSS 11.0 (SPSS, Chicago, Ill) for analysis.

2.4. Methods of measurement

The George Washington University Universal Violence Prevention Screening Protocol was used to screen for phy-

sical violence, threat of violence, sexual violence, and emotional violence [15] among participants who had been in a relationship in the past year. A positive response to any question yielded a positive screen for IPV. A prior study demonstrated a sensitivity of 78% to 95% for the physical and emotional abuse screening questions and a positive predictive value of 75% to 95% compared to the Index of Spouse Abuse [16].

The Beck Depression Inventory—II (BDI-II) [17] was used to ascertain the presence and severity of depressive symptoms. The BDI-II is a 21-question measure designed to detect symptoms of depression and the severity of each reported symptom based on a 0 (minimal) to 3 (severe) coding scale (ie, a 4-point intensity scale) [17]. Total BDI-II scores of 20 or greater, indicative of moderate or severe levels of depressive symptoms, were coded as presence of depressive symptoms [17]. Validity tests of the BDI-II in other samples using the same cut point resulted in an overall classification rate of 88% (sensitivity, 71%; specificity, 88%) [18]. In our sample, Cronbach α was .94.

Part 3 of the Posttraumatic Stress Diagnostic Scale [19] was used to ascertain the presence and severity of PTSD symptoms. This section of the Posttraumatic Stress Diagnostic Scale (symptom severity scale) asks 17 questions that address the 3 categories of symptoms associated with a diagnosis of PTSD: reexperience (5 questions), avoidance (7 questions), and hyperarousal (5 questions). Patients who had scores of 21 or higher were coded as having PTSD symptoms, as these scores have been found to reflect moderate or severe levels of PTSD symptoms [19]. Validity tests resulted in an overall classification rate of 74% (sensitivity, 89%; specificity, 65%) [19]. In our sample, Cronbach α was .94.

The Beck Scale for Suicide Ideation (BSS) [20] was used to measure suicidal intent. The BSS consists of 5 screening items and 21 test items. The 5 screening items eliminate the need for nonsuicidal persons to complete the 21 test items. Response categories for the first 19 questions consist of a 3-point intensity scale ranging from 0 to 2. When summed, total BSS scores range from 0 to 38 [20]. The BSS is reported to be highly reliable with an internal consistency of 0.89 and an interrater reliability of 0.83 [20]. Patients who scored 11 or more on the scale were considered to be positive for suicidal ideations, consistent with the literature [21]. In our sample, Cronbach α was .81.

2.5. Sample size

The sample size calculation incorporated what has been reported about the prevalence of IPV, depressive symptoms, PTSD symptoms, and suicidality in other ED populations. It is expected that 30% of our female ED patient population will be victims of IPV (ie, ratio of a non-IPV to IPV, 2:1). The α and β were set at .05 and .2 (80% power), respectively. The effective sample size was calculated using the most conservative figures that correspond to detecting a difference in the prevalence of suicidal ideation in IPV participants vs non-IPV participants (ie, depression is expected to be more prevalent in this population). Calculations indicated that 111 IPV and 222 non-IPV participants, or a total of 333 women, should be enrolled. A sample of this size would detect a difference of 10% between groups, at 80% power and a significance level of 0.05.

2.6. Data analysis

Prevalence rates were determined for IPV, depressive symptoms, PTSD symptoms, and suicidality. A series of χ^2 analyses were conducted to test for the association between IPV status and presence or absence of mental health symptoms; t tests were performed to compare IPV status and mean scores on the mental health symptom scales. A logistic regression was conducted to examine the association between mental health symptoms and type of abuse. A binomial logistic regression was used because the outcome variables, mental health symptoms, were dichotomous. We also calculated Pearson correlation coefficients to determine the correlations between types of IPV and mental health symptoms. Finally, relative risk ratios were calculated to determine whether there was an increase in mental health symptoms when a person experienced multiple types of abuse. All usable data were included for participants who were unable to finish the survey.

3. Results

We approached 1118 patients; 341 (30.5%) were not eligible to participate. The most common reason for not participating was that the research assistant determined that the patient was "too sick." Of 777 eligible patients, 589 (76%) agreed to participate. There were no demographic differences in responders and nonresponders with respect to age (35 vs 37; $P = .06$) or chief complaint (medical complaints, 66.5% vs 68.7%; $P = .39$). Of the 589 self-identified African American females who agreed to participate in the screening study; 569 (97%) completed it. Most study participants were single and lacked health insurance. Table 1 summarizes the demographic characteristics of participants.

Of note, 461 females had been in an intimate relationship within the past year, and this group comprised our study population. Of this group, 167 (36%) disclosed IPV victimization within this time frame. Almost one fourth of the participants reported moderate to severe depressive symptoms, 15% reported moderate to severe PTSD symptoms, and 6% disclosed significant levels of suicidal ideation based on their responses to the validated mental health scales. Table 1 also reports these findings.

χ^2 analyses revealed an association between IPV victimization and moderate to severe depressive symptoms (42% vs 14%; $P < .001$), moderate to severe PTSD symptoms (28% vs 7%; $P < .001$), and suicidality (12% vs 2%; $P < .001$). Physical, emotional, and sexual IPV were each significantly associated with depressive symptoms

(χ^2 $P < .001$), suicidality ($P < .001$), and PTSD symptoms ($P < .001$). Twenty-seven patients expressed suicidal ideations and were brought back to the ED for medical evaluation. Table 2 details these results.

The mean scores on the depression, PTSD and suicidality scales were higher for participants who were victims of each type of IPV compared with those who did not report IPV victimization. Table 3 shows these results. In general, physical, sexual, and emotional IPV were each significant for increased depression, PTSD, and suicide based on mean scale scores.

Binomial logistic regressions were run to determine the percentage of variance in mental health symptoms. Included in all regressions were the following variables: physical IPV, sexual IPV, emotional IPV, education, smoking status, recent drug use, alcohol problems, and socioeconomic status (SES). Results from the logistic regression for depressive symptoms indicated that emotional IPV, alcohol abuse, education, and SES were significantly associated with depressive symptoms. Being a victim of emotional IPV [Exp(B) = 3.14, P = .008] and alcohol abuse [Exp(B) = 2.902, P =.003] increased the risk for depressive symptoms. Higher education (Exp(B) = .646, P = .02) and higher SES [Exp(B) = .554, P = .01] decreased the risk of depressive symptoms. For PTSD symptoms, being a victim of sexual abuse increased the risk of the participant experiencing PTSD symptoms [Exp(B) = 4.347, P =.007]. Physical IPV increased the risk of suicidal ideations [Exp(B) = 7.628, P = .014].

Pearson correlation coefficients were run to determine the correlations between each type of IPV and mental health symptoms. Physical IPV was positively correlated with sexual IPV, emotional IPV, depressive symptoms, PTSD symptoms, and suicidal ideations. All correlations were significant at the $P < .001$ level. Sexual IPV was positively correlated with physical IPV, emotional IPV, depressive symptoms, PTSD symptoms, and suicidal ideations. All correlations were significant at the $P < .001$ level. Emotional IPV was positively correlated with physical IPV, sexual IPV, depressive symptoms, PTSD symptoms, and suicidal ideations. All correlations were significant at the $P < .001$ level.

Depressive symptoms were positively correlated with physical IPV, sexual IPV, emotional IPV, PTSD symptoms, and suicidal ideations. All correlations were significant at the $P < .001$ level. Posttraumatic stress disorder symptoms were positively correlated with physical IPV, sexual IPV, emotional IPV, depressive symptoms, and suicidal ideations. All correlations were significant at the $P < .001$ level. Suicidal ideations were positively correlated with physical IPV, sexual IPV, emotional IPV, depressive symptoms, and PTSD symptoms. All correlations were significant at the

Table 1 Characteristics of participants

Mean age (y)	34.2
Education (n = 588)	
Less than ninth grade	3%
Some/completed high school	57%
Some/completed college	40%
Marital status (n = 588)	
Single	73%
Separated/divorced	18%
Widowed	2%
Married	8%
Employed (n = 573)	43%
Health insurance (n = 567)	
None	63%
Medicaid/Medicare	25%
Private	3%
Relationship in past year/eligible to answer IPV screening questions (n = 461)	
Mental health symptoms	
Moderate/severe depressive symptoms (n = 456)	24%
Moderate/severe PTSD symptoms (n = 454)	15%
Suicidal ideations (n = 451)	6%
IPV victimization	36%
Physical IPV	22%
Sexual IPV	9%
Emotional IPV	32%
No. of types of abuse	
1	17%
2	14%
3	6%

Table 2 Association with IPV and mental health symptoms

	Depression (%)	PTSD (%)	Suicidality (%)
IPV +	42 vs 14	28 vs 7	12 vs 2
Physical	47 vs 17	35 vs 9	19 vs 2
Sexual	60 vs 20	49 vs 11	23 vs 4
Emotional	47 vs 13	30 vs 8	14 vs 2

$P < .001$ for all calculations.

Table 3 Mean mental health symptom scores and type of IPV

	Physical IPV +	Physical IPV −
Depression	22.3	10.1
PTSD	13.5	4.7
Suicidality	4.7	0.9
	Sexual IPV +	**Sexual IPV −**
Depression	25.4	11.5
PTSD	17.5	5.6
Suicidality	5.0	1.4
	Emotional IPV+	**Emotional IPV−**
Depression	21.4	8.8
PTSD	12.4	4.0
Suicidality	3.4	0.9

$P < .001$ for all calculations.

Table 4 RR ratios for mental health symptoms by amount of abuse

No. of types of abuse	RR (95% CI)—depression	RR (95% CI)—PTSD	RR (95% CI)—suicidality
0 Types of IPV	1	1	1
1 Types of IPV	2.4 (1.6-3.7)	2.4 (1.2-4.5)	2.2 (0.5-9.0)
2 Types of IPV	3.1 (2.0-4.8)	3.8 (2.1-6.8)	9.4 (3.3-26.3)
3 Types of IPV	5.9 (4.1-8.5)	9.4 (5.7-15.6)	17.5 (6.2-50.0)

$P < .001$ level. Taken together, these data indicate that each form of IPV is significantly associated with each other as well as with each type of mental health problem.

Finally, concurrently experiencing more than 1 type of IPV was significantly correlated with an increased risk of symptoms. The relative risk (RR) for depressive symptoms increased to 5.9 (95% CI, 4.1-8.5) for IPV victims experiencing 3 types of IPV (physical, sexual, and emotional abuse). Similar findings were noted with PTSD symptoms (RR, 9.4; 95% CI, 5.7-15.6 for 3 types of abuse) and suicidal ideations (RR, 17.5; 95% CI, 6.2-50.0 for 3 types of abuse). Table 4 details these results.

4. Discussion

We found a high 1-year prevalence rate of IPV (36%) among low-income, urban African American female patients visiting our inner-city ED. Although the rate of IPV disclosed by our participants was substantially higher than that noted in other studies of ED patients [3], we only recruited African American female patients. Previous studies have demonstrated higher rates of self-reported IPV among African Americans and in lower-income women [5,6]. It is unclear whether this reflects a higher frequency of victimization or greater willingness to report.

We also found significant levels of mental health symptoms in this sample, with 24% of the participants reporting moderate to severe depressive symptoms. Kumar et al [22] stated that lower level of education, low SES, smoking, and female sex were associated with depression in patients at 4 urban EDs. Six percent of the participants reported elevated levels of suicidality. This is also consistent with another study that found that 12% of ED patients seeking medical care for nonpsychiatric complaints had suicidal ideations and 2% reported planning to kill themselves [23]. However, neither of these studies looked at concurrent levels of depression, PTSD, and suicidality in their populations.

Intimate partner violence was significantly associated with mental health symptoms in the study. Physical, sexual, and emotional IPV were each associated with depressive symptoms, PTSD symptoms, and suicidality. Silverman et al [24] also reported that physical and sexual IPV were associated with attempted suicide among adolescent females. Another study in Australia revealed that women who experience physical IPV (OR, 3.2) and emotional IPV (OR, 2.1) were more likely to disclose depressive symptoms than women who did not report IPV [25]. Our study supports these earlier findings and supports the notion that mental health symptoms are strongly associated with IPV. Our study is unique, however, in that we found that all 3 types of IPV (emotional, physical, sexual) are associated with depressive symptoms, PTSD symptoms, and suicidality. We also found significant correlations between each mental health symptom and each type of IPV. Thus, health care providers must be aware that a strong link exists between IPV and mental health symptoms. Otherwise, many IPV survivors will not receive the mental health referrals they need, and many mental health patients may not be adequately screened for IPV.

Although we did not examine the potential correlation between the severity of violence and the degree of mental health symptoms, we did note higher scores on each mental health scale with each type of IPV. This indicates that women experiencing IPV have more severe mental health symptoms than women not experiencing IPV. Other studies have also found a correlation with severity of abuse and severity of mental health symptoms. Dienemann et al [26] reported that severity of IPV was significantly correlated with depression. A study conducted in Missouri found that sexual violence severity is correlated with PTSD symptoms [27].

Other studies have reported an additive impact of childhood violence on mental health symptoms [11,28]. Anderson et al [28] noted that women who experienced 1, 2, or 3 forms of childhood abuse were 1.8, 2.3, or 7.8 times more likely to attempt suicide than women who did not report childhood abuse. We found a similar dose-response effect for adults with depressive symptoms, PTSD symptoms, and suicidality. Our results were particularly significant for suicidality when IPV victims reported experiencing all 3 types of abuse (RR of 17.5 compared with RRs of 1, 2.2, and 9.4 when victims reported 0, 1, or 2 forms of IPV, respectively). Our study is unique in that it looked at the sequelae of violence in adulthood, whereas other studies reported on childhood abuse.

Each type of abuse (physical, emotional, and sexual) was associated with depressive symptoms, PTSD symptoms, and suicidality. In addition, victims who experienced multiple types of abuse were at an increased risk of mental health symptoms. This suggests that each type of abuse has a dose response on mental health symptoms. Victims who experienced multiple types of abuse had an increased cumulative risk of mental health symptoms. This observation suggests that health care providers should routinely ask IPV victims about mental health symptoms or refer these patients to mental health services. They should also screen women reporting significant levels of depression, PTSD, and/or suicidality for IPV. Indeed, IPV may be the driving force in the depressive symptoms. Kernic et al [29] reported that cessation of IPV was associated with a 35%

decline in depression compared with victims currently being abused. Thus, by identifying and referring victims, we may be able to favorably influence both their physical and mental well-being.

Nevertheless, the public health implications of this study are significant, even if our observations are limited to low-income African American women visiting urban emergency departments. We observed that computer-based screening is a simple and feasible approach to encourage patients to disclose risky health behavior and other threats to their health and safety. Patients using this tool were not only willing to disclose IPV, but also a range of mental health symptoms. Emergency physicians need to ask about psychiatric symptoms in patients with IPV and refer IPV victims who disclose mental health issues.

5. Limitations

Our study is limited in certain respects. Our observations are based on self-report; thus, recall bias or nondisclosure may affect our results. However, we used highly validated tools, including an IPV screen that had been previously validated in our ED. Our study was conducted in an inner-city ED in a large southeastern city. Our findings might not, therefore, be readily generalizable to other regions, smaller communities, or health care facilities that serve a different clientele. Surveys conducted in these settings might yield different prevalence rates and associations. None of our mental health or violence scales have 100% sensitivity, and thus, we may have included false positives in our study. For example, the sensitivity of the Universal Violence Prevention Screening Protocol for IPV ranges from 78% to 95%; thus, up to 1 of every 4 participants may be misclassified. In addition, surveys do not always imply a *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* diagnosis. However, these scales are widely regarded as highly reliable, and each has been validated. In addition, patients who test positive for mental health problems in the study may be under treatment already. We only included African American females in this study. A survey that included other racial or ethnic groups or one that included men may have produced varying results. We did not screen acutely ill or severely injured patients; thus, the most severely battered women may not have participated in the study. Finally, a positive correlation between IPV and mental symptoms does not necessarily mean causation.

6. Conclusion

In a low-income African American female ED population, we found that IPV is significantly associated with a range of worrisome and potentially dangerous mental health symptoms. Furthermore, we noted that physical, sexual, and emotional IPV are all correlated with depressive symptoms, PTSD symptoms, and suicidality. Intimate partner violence victims concurrently experiencing more than 1 type of abuse have worse mental health, on average, than victims that experience only one type of abuse, or none at all. Finally, computer-based screening has significant potential for identifying patients with IPV and mental health symptoms.

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