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Sandra L. Martin, Neepa Ray, Daniela Sotres-Alvarez, Lawrence L. Kupper, Kathryn E. Moracco, Pamela A. Dickens, Donna Scandlin and Ziya Gizlice

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Physical and Sexual Assault of Women With Disabilities

Sandra L. Martin

University of North Carolina, Chapel Hill

Neepa Ray

RHO Inc., Chapel Hill, NC

Daniela Sotres-Alvarez

Instituto Nacional de Salud Pública, Cuernavaca, Mexico

Lawrence L. Kupper

University of North Carolina, Chapel Hill

Kathryn E. Moracco

Pacific Institute for Research and Evaluation, Chapel Hill, NC

Pamela A. Dickens

Donna Scandlin

University of North Carolina, Chapel Hill

Ziya Gizlice

State Center for Health Statistics, Raleigh, NC

North Carolina women were surveyed to examine whether women's disability status was associated with their risk of being assaulted within the past year. Women's violence experiences were classified into three groups: no violence, physical assault only (without sexual assault), and sexual assault (with or without physical assault). Multivariable analysis revealed that women with disabilities were not significantly more likely than women without disabilities to have experienced physical assault alone within the past year (odds ratio [OR] = 1.18, 95% Confidence Interval [CI] = 0.62 to 2.27); however, women with disabilities had more than 4 times the odds of experiencing sexual assault in the past year compared to women without disabilities (OR = 4.89, 95% CI = 2.21 to 10.83).

Keywords: *disabilities; domestic violence; physical assault; rape; sexual assault*

Violence against women, including physical and sexual violence, has been recognized as a prevalent public health problem that can have a multitude of deleterious effects on women's health, including injuries, physical and mental health problems, substance abuse, and even death (Campbell et al., 2003; Cloutier, Martin, & Poole, 2002; Koss, Goodman, Browne, Fitzgerald, Keita et al., 1994; Martin,

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Beaumont, & Kupper, 2003; Moracco, Runyan, & Butts, 1998; Tjaden & Thoennes, 2000). Although all women are in danger of experiencing violence, research is beginning to examine whether particular groups of women are at elevated risk of such victimization. Identification of such high-risk groups will allow clinicians, and others who work in violence prevention and intervention activities, to better target their resources toward women with the greatest need.

It has been suggested that women with disabilities (i.e., physical or mental impairments that substantially limit one or more major life activities; Americans with Disabilities Act, 1990) may be at increased risk of physical and sexual assault (Andrews & Veronen, 1993; Curry, Hassouneh-Phillips, & Johnston-Silverberg, 2001; Furey, 1994; Nosek, 1996; Tyiska, 1998). For example, women with health and/or strength impairments may be more likely to be assaulted than other women if violence perpetrators feel that such women will be relatively powerless to resist. Other perpetrators may focus their attention on women with cognitive impairments, thinking that these women may be more easily manipulated into dangerous situations where violence can occur. Violence perpetrators also may feel that women with disabilities may be less likely than other women to report assaults (e.g., women with communication disabilities may feel somewhat uncomfortable conversing with others, including the police, lawyers, and judicial officials). Moreover, women with disabilities who reside in their own homes and who are assaulted by persons on whom they rely to assist them with routine activities may choose not to disclose violence to authorities because of fear that they will have no one to provide essential care for them or that they will be moved to a more restrictive environment "for their own protection." Not only may women with disabilities be at higher risk of assault compared to women without disabilities but also such violence may have a greater negative impact on the well-being of these women whose health is already compromised (Tyiska, 1998).

Despite these concerns, there is currently little empirical information documenting whether women with disabilities are at increased risk of physical and/or sexual assault compared to women without disabilities. This is because most studies examining violence in the lives of persons with disabilities have not included comparison samples of persons without disabilities. For instance, a record review of 9,400 institutionalized women and men with mental retardation living in 23 residential facilities in six southern U.S. states found that approximately 5% of the residents had experienced some form of abuse by a member of the facility staff during a 22-month period; the most common forms of abuse were *neglect* (defined as a staff member's failure to carry out a duty so that the client was harmed or at risk of being harmed; experienced by approximately 43% of those abused) and *physical abuse* (defined as being any assault or use of excessive force by a staff member on a client; experienced by approximately 38% of those abused; McCartney & Campbell, 1998). A study of 91 women and men with severe physical disabilities who used paid professional attendant services to help them carry out their daily living activities (e.g., personal hygiene, dressing) found that 10% of the study respondents reported having been physically abused by these attendants at

some point during their lifetimes (Ulicny, White, Bradford, & Mathews, 1990). A survey of 511 female patients recruited from five specialty health clinics serving persons with physical disabilities found that 10% had experienced physical abuse, sexual abuse, or some other type of abuse within the past year, with intimate partners being the most common perpetrators of such abuse, followed by family members and health and/or care providers (McFarlane et al., 2001). Another clinic-based study of 1,000 consecutive adult female patients with neurological disorders attending outpatient clinics in Mexico City, Mexico, found that 31% had been victims of domestic violence at some point during their lifetime (Diaz-Olavarrieta, Campbell, Garcia de la Cadena, Paz, & Villa, 1999). Persons with low vision also have been studied, with a survey of 169 legally blind persons (88 women and 81 men) finding that 35% had been physically harmed and/or abused by another person during their lifetime and that 11% had experienced sexual abuse during their lifetime (Kelley & Moore, 2000). A survey of 105 women and 51 men recruited from attendees at a National Convention of the American Council of the Blind found that 30% of women and men had been targets of physical and/or sexual assault during their lifetime (Pava, 1994). Finally, a review of medical files of 22 women and 31 men who were receiving Social Security income because of disabilities found that 36% of the women, but none of the men, had been victims of domestic violence at some point during their lifetime (Mills, 1997).

A handful of studies have compared physical and/or sexual assault experiences between women with and without disabilities; however, each of these studies had some methodological limitations, including using convenience samples rather than representative community samples, focusing exclusively on one type of violence (such as sexual violence, but not physical violence), and focusing exclusively on violence perpetration by one type of person (such as violence perpetrated only by intimate partners rather than violence perpetrated by all persons). For example, one of these investigations studied a convenience sample of women with physical disabilities who were recruited through 10 independent living centers (i.e., nonresidential, community-based organizations that provide a variety of advocacy and services for persons with many types of disabilities; Young, Nosek, Howland, Chanpong, & Rintala, 1997). Each of these study respondents then recruited a friend without a disability to also take part in the study. This research found that the two groups of women reported similar lifetime assault prevalence rates, with 36% of the women with disabilities and without disabilities experiencing physical assault, and 40% of the women with disabilities versus 37% of the women without disabilities experiencing sexual assault. Another study surveyed a community sample of women in Massachusetts, comparing women who had and had not experienced abuse by their intimate partners, with this abuse being defined to include feeling controlled by their partner, being fearful that their partner might hurt them or their family and/or friends, and/or being physically and/or sexually assaulted by their partner (Hathaway et al., 2000). This study found that 26% of the women abused by their partners within the past year had a physical or emotional limitation or disability, compared to 14% of the nonabused women; however, this association did

not reach the traditional level of statistical significance after controlling for the women's sociodemographic characteristics. A third study investigated a representative sample of adolescent females in Grades 7 through 12 and found that those with minimal physical disabilities were significantly more likely than those without disabilities to report ever having been forced to have sex with someone (12% vs. 6%, respectively); however, no information was reported concerning the social relationship of the perpetrator to the victim or the physical violence victimization experiences of these adolescents (Cheng & Udry, 2002).

These past studies provide important information concerning potential links between females' disability status and their experiences of violence. This article extends our knowledge in this area by reporting on the first statewide investigation of a representative sample of noninstitutionalized women of which we are aware that compares women with and without disabilities in terms of the prevalence of physical and sexual assault perpetrated by a variety of individuals (e.g., intimate partners, other persons known by the victim).

Method

Sample

The current investigation used data from the North Carolina Behavioral Risk Factor Surveillance System (NC-BRFSS), a project funded by the Centers for Disease Control and Prevention (CDC) and administered by the State Center for Health Statistics in Raleigh, North Carolina. NC-BRFSS is an ongoing random-digit dial household telephone survey of a representative sample of noninstitutionalized adults (age 18 years and older) that collects information concerning an assortment of health and sociodemographic variables. A total of 5,694 women were surveyed by the NC-BRFSS during the years 2000 and 2001, with 5,326 of these women (94%) responding to the survey questions included in this article. Therefore, these 5,326 women serve as the study sample for the current research.

Assessment

The years 2000 and 2001 NC-BRFSS surveys posed several questions to assess the women's disability status at the time of the study interview. One question focused on activity limitations, asking women whether they felt that "physical, mental, or emotional problems limited their activities in any way." A second question assessed cognitive limitations, asking the women if they "had trouble learning, remembering, or concentrating." A third question concerned the use of special equipment, asking women if they "used devices such as a cane, wheelchair, etc." A fourth question asked about women's perceptions regarding their own disability status, asking women

whether they “considered themselves to have a disability.” Women who reported having a disability also were asked about the age at which their disability began. For analysis purposes, women who responded *yes* to one or more of these four disability questions were classified as having a disability, and women who responded *no* to all of the four questions were classified as not having a disability.

The survey also examined the women’s experiences of physical and sexual assault within the past year (i.e., during the 12 months preceding the survey). Physical assault was assessed by asking the women whether anyone had “pushed, hit, slapped, kicked, or physically hurt them in any other way” during the past year. Sexual assault was assessed by asking the women whether anyone had “forced them to have sex or do sexual things” during the past year. Each woman who experienced such assault was asked about the perpetrator’s social relationship to her (e.g., current or ex-intimate partner, someone she knew other than a partner, or stranger). For analysis purposes, the women’s violence experiences were classified into three groups based on the women’s responses to the assault questions: (a) *no violence*, defined as experiencing neither physical nor sexual assault in the past year (i.e., the women responded *no* to the physical and sexual assault questions); (b) *physical assault only*, defined as experiencing physical assault, but not sexual assault, in the past year (i.e., the women responded *yes* to the physical assault question and *no* to the sexual assault question); and (c) *sexual assault*, defined as experiencing sexual assault with or without physical assault in the past year (i.e., the women responded *yes* to the sexual assault question and responded either *yes* or *no* to the physical assault question).

The survey also collected sociodemographic data regarding the respondents. Information was gathered concerning each respondent’s race, age, education level, marital status, and employment.

Analysis

Descriptive analysis, including proportions and means, were used to describe the current study sample. Bivariate analyses, including the computation of odds ratios (ORs) and 95% Confidence Intervals (95% CIs), were used to examine the women’s experiences of violence in the past year, stratified by their disability status and various sociodemographic characteristics. A multinomial logit model (Hosmer & Lemeshow, 1989) was used to model the women’s experiences of assault in the past year (e.g., no assault, physical assault only, or sexual assault) as a function of the women’s disability status (had a disability vs. did not have a disability) and sociodemographic characteristics. The sociodemographic characteristics included: age (classified as younger if younger than age 40 years vs. older if age 40 years or older), race (classified as non-White vs. White), marital status (classified as not married vs. married), level of education (classified as lower if high school or less vs. higher if more than high school), and employment (classified as employed vs. not employed). Estimated regression coefficients from the fitted model were used to compute adjusted ORs and 95% CIs to assess associations between

the women's disability status and their experiences of violence in the past year, while controlling for sociodemographic characteristics. In addition, four similar multinomial logit models were used to examine women's assault experiences as a function of particular types of disabilities and sociodemographic characteristics. The first of these models examined assault as a function of self-perceived disability, the second examined assault as a function of cognitive impairments, the third examined assault as a function of activity limitations, and the fourth examined assault as a function of the use of special equipment. All analyses were conducted using the SUDAAN software package (Shah, Barnwell, & Bieler, 1996) to take the complex survey sampling methods into account.

Institutional Review Board for Human Subjects Approval

All procedures used in the current study were approved by the Institutional Review Board for Human Subjects Research of the University of North Carolina at Chapel Hill.

Results

Description of the Study Women

The 5,326 study women ranged from age 18 to 99 years, with a mean age of 46.3 years (95% CI = 45.6 to 47.0 years). Seventy-five percent of the women classified themselves White, 51% had a high school level of education or more, 58% were married, and 56% were employed.

Disability Status of the Study Women

Examination of the women's disability status found that the prevalence of having some type of disability was 26% (95% CI = 24% to 27%). Among the women classified as having a disability: 68% reported that a physical, mental, or emotional problem limited their activities; 61% perceived themselves as having a disability; 42% reported that they had trouble learning, remembering, or concentrating; and 26% used some type of special equipment such as a cane, wheelchair, or special telephone. (Note that these percentages sum to more than 100% because some women responded *yes* to more than one of the four disability questions [e.g., she had trouble learning, remembering, and concentrating, and she used some special equipment]). The mean age of the women with disabilities at the time of the current study survey was 53.9 years, with their mean age being 38.5 years when their disability began.

Women's Experiences of Physical and Sexual Assault

For all of the study women, the prevalence of some type of assault (physical and/or sexual) occurring within the past year was 3.1% (95% CI = 2.5% to 3.7%).

The prevalence of physical assault during the past year was 2.6% (95% CI = 2.1% to 3.2%), with 44% of those physically assaulted being violated by current and/or ex-intimate partners, 26% by someone known to the women other than a partner, 17% by strangers, and 13% by more than one type of person. The prevalence of sexual assault during the past year was .8% (95% CI = 0.6% to 1.1%), with 48% of the sexual assault victims being assaulted by current and/or ex-intimate partners, 18% by someone known to the women other than a current and/or ex-intimate partner, 17% by strangers, and 17% by multiple persons. Classification of the women's violence experiences for analysis purposes found that 5,148 women experienced no violence (i.e., they experienced neither physical nor sexual assault in the past year), 128 experienced physical assault only (i.e., they experienced physical assault in the past year but did not experience sexual assault in the past year), and 50 experienced sexual assault (i.e., they experienced sexual assault within the past year, with or without physical assault). Among those experiencing sexual assault, 57% experienced sexual assault without physical assault, while 43% experienced sexual and physical assault in the past year.

Women's Assault Experiences by Disability Status and Sociodemographic Characteristics

Table 1 presents bivariate analyses of the women's experiences of violence within the past year, stratified by their disability status and sociodemographic characteristics. Bivariate analysis found that women with disabilities were not significantly more or less likely than women without disabilities to have experienced physical assault alone in the past year, with 2.0% of the women with disabilities experiencing such violence compared to 2.3% of the women without disabilities (OR = 0.88, 95% CI = 0.50 to 1.54). However, bivariate analyses did find that women with disabilities were significantly more likely than women without disabilities to have experienced sexual assault within the past year, with 1.5% of the women with disabilities having been sexually assaulted compared to only .6% of the women without disabilities (OR = 2.54, 95% CI = 1.23 to 5.24).

Examination of women's assault experiences in the past year among the four subgroups of women who responded *yes* to a particular disability question on the survey (i.e., those who reported that they considered themselves to have a disability, those who reported having a cognitive impairment, those who reported having an activity limitation, and those who reported using special equipment) found no significant associations between physical assault alone and any of the types of disabilities. However, sexual assault was significantly more likely among two groups of women. In particular, 2.1% of the women who considered themselves as having a disability experienced sexual assault in the past year compared to .6% of the women without disabilities (OR = 3.35, 95% CI = 1.61 to 6.97), and 1.7% of the women reporting cognitive impairments had experienced sexual assault in the past year compared to the .6% of women without disabilities (OR = 2.26, 95% CI = 1.08 to 4.76).

Table 1 also shows that bivariate analyses found that four sociodemographic characteristics were significantly associated with women's experiences of assault in the

Table 1
Bivariate Analyses of Women’s Disability Status
and Sociodemographic Characteristics by Their
Experiences of Assault Within the Past Year (n = 5,326)

Characteristic	Physical Assault Only ^a		Sexual Assault ^b	
	%	OR (95% CI)	%	OR (95% CI)
Disability status				
Any disability (n = 1,443)	2.0	0.88 (0.50-1.54)	1.5	2.54 (1.23-5.24) ^c
Self-identified disability (n = 873)	1.8	0.80 (0.39-1.62)	2.1	3.35 (1.61-6.97) ^c
Cognitive impairment (n = 584)	3.2	1.56 (0.78-3.12)	1.7	2.26 (1.08-4.76) ^c
Activity limitation (n = 992)	1.9	0.82 (0.41-1.63)	1.1	1.42 (0.63-3.18)
Use of equipment (n = 378)	1.8	0.80 (0.28-2.32)	.7	0.86 (0.21-3.61)
No disability (n = 3,883)	2.3	(referent)	.6	(referent)
Age				
Younger (n = 1,940)	4.1	4.05 (2.51-6.56) ^c	1.7	6.1 (2.58-14.57) ^c
Older (n = 3,386)	1.1	(referent)	.3	(referent)
Race				
Non-White (n = 1,279)	2.2	1.01 (0.60-1.69)	1.8	3.55 (1.71-7.37) ^c
White (n = 4,047)	2.2	(referent)	.5	(referent)
Marital status				
Not married (n = 2,648)	3.2	2.16 (1.33-3.51) ^c	1.2	2.21 (1.00-4.90)
Married (n = 2,678)	1.5	(referent)	.6	(referent)
Employed				
Yes (n = 2,956)	2.8	1.80 (1.05-3.07) ^c	1.0	1.39 (0.62-3.10)
No (n = 2,370)	1.6	(referent)	.7	(referent)
Education level				
Lower (n = 2,427)	2.6	1.45 (0.90-2.33)	.7	.78 (0.37-1.61)
Higher (n = 2,899)	1.8	(referent)	1.0	(referent)

Note: OR = odds ratio, CI = Confidence Interval.

The n’s are the actual sample sizes, while the percentages, ORs, and CIs have been adjusted using the sampling weights.

a. *Physical assault only* was defined as experiencing physical assault, but not sexual assault, in the past year.

b. *Sexual assault* was defined as experiencing sexual assault with or without physical assault in the past year.

c. Statistically significant associations ($p < .05$).

past year. In particular, younger women (i.e., those younger than age 40 years) were much more likely than older women to have experienced physical assault alone (OR = 4.05, 95% CI = 2.51 to 6.56) and sexual assault (OR = 6.14, 95% CI = 2.58 to 14.57). Race was significantly associated with sexual assault, with non-White women being more likely than White women to experience such violence (OR = 3.55, 95% CI = 1.71 to 7.37). Marital status was significantly associated with physical assault

alone, with women who were not married being more likely than married women to experience this (OR = 2.16, 95% CI = 1.33 to 3.51). In addition, the odds of being sexually assaulted were higher for women who were not married compared to married women; however, this association was of borderline statistical significance (OR = 2.21, 95% CI = 1.00 to 4.90). Finally, employed women were significantly more likely than women who were not employed to have experienced physical assault alone in the past year (OR = 1.80, 95% CI = 1.05 to 3.07).

Table 2 presents the results of the multinomial logit model that examined the women's assault experiences in the past year (i.e., no violence, physical assault only, sexual assault) as a function of their disability status (i.e., having some type of disability vs. no disability) and sociodemographic characteristics. After controlling for the sociodemographic variables, women with disabilities were not significantly more likely than women without disabilities to have experienced physical assault alone within the past year (OR = 1.18, 95% CI = 0.62 to 2.27). However, women with disabilities had more than 4 times the odds of experiencing sexual assault in the past year compared to women without disabilities (OR = 4.89, 95% CI = 2.21 to 10.83). Sociodemographic characteristics significantly predictive of women's assault experiences within the past year included age (with younger women being more likely than older women to have experienced physical assault alone (OR = 3.93, 95% CI = 2.28 to 6.78) and sexual assault (OR = 7.35, 95% CI = 2.34 to 23.10), race (with non-White women being more likely than White women to have experienced sexual assault, OR = 2.98, 95% CI = 1.36 to 6.51), and marital status (with not married women being more likely than married women to have experienced physical assault alone, OR = 2.01, 95% CI = 1.21 to 3.34). In addition, although the odds of experiencing physical assault alone was higher among women with lower levels of education compared to women with higher levels of education, this association was of borderline statistical significance (OR = 1.69, 95% CI = 1.00 to 2.86).

Table 3 shows that the findings from the four multinomial logit analyses that examined the women's assault experiences in the past year as a function of various types of disability status (i.e., self-identifying as having a disability, having a cognitive impairment, having an activity limitation, or using special equipment) and sociodemographic characteristics were similar to those of the previously described (disability vs. no disability) model. More specifically, the model examining assault of women who self-identified as having a disability compared to women with no disability found that, after controlling for sociodemographic variables, those who self-identified as having a disability were not more likely than others to have experienced physical assault alone within the past year (OR = 1.18, 95% CI = 0.54 to 2.58); however, sexual assault was much more likely among those who self-identified as having a disability (OR = 7.61, 95% CI = 3.10 to 18.65). The model examining assault as a function of disability status defined in terms of having a cognitive impairment did not find cognitive impairments to be associated with women's experiences of physical assault alone in the past year (OR = 1.99, 95% CI = 0.93 to 4.29); however, sexual assault was more likely among women

Table 2
Results of the Multinomial Logit Model Analysis of the Women’s Assault Experiences in the Past Year Modeled as a Function of Disability Status (Disability vs. No Disability) and Sociodemographic Characteristics (n = 5,326)

Predictor Variables	Physical Assault Only ^a vs. No Violence	Sexual Assault ^b vs. No Violence
	OR (95% CI)	OR (95% CI)
Any disability		
Yes	1.18 (0.62-2.27)	4.89 (2.21-10.83) ^c
No	(referent)	(referent)
Age		
Younger	3.93 (2.28-6.78) ^c	7.35 (2.34-23.10) ^c
Older	(referent)	(referent)
Race		
Non-White	0.70 (0.41-1.21)	2.98 (1.36-6.51) ^c
White	(referent)	(referent)
Marital status		
Not married	2.01 (1.21-3.34) ^c	1.53 (0.65-3.58)
Married	(referent)	(referent)
Education level		
Lower	1.69 (1.00-2.86)	0.68 (0.32-1.44)
Higher	(referent)	(referent)
Employed		
Yes	1.57 (0.85-2.88)	1.25 (0.45-3.46)
No	(referent)	(referent)

Note: OR = odds ratio; CI = Confidence Interval.

The ORs and CIs have been adjusted using the sampling weights.

a. *Physical assault only* was defined as experiencing physical assault, but not sexual assault, in the past year.

b. *Sexual assault* was defined as experiencing sexual assault with or without physical assault in the past year.

c. Statistically significant associations ($p < .05$).

with cognitive impairments (OR = 5.19, 95% CI = 1.99 to 13.58). The model examining assault as a function of disability status defined in terms of women’s activity limitations did not find that women’s activity limitations were associated with their experiences of physical assault only in the past year (OR = 1.17, 95% CI = 0.55 to 2.51); however, sexual assault was more likely among the women with activity limitations (OR = 4.16, 95% CI = 1.50 to 11.50). Last, the model examining assault as a function of disability status defined in terms of using special equipment found that such equipment use was not associated with women’s experiences of physical assault only in the past year (OR = 1.07, 95% CI = 0.32 to 3.59); in addition, although the OR quantifying the strength of the association between using special equipment and sexual assault was large, the CI was wide and was not statistically significant (OR = 3.49, 95% CI = 0.53 to 23.03).

Table 3
Results of Four Multinomial Logit Analyses of the Women's Assault Experiences in the Past Year
as a Function of Particular Types of Disability Status and Sociodemographic Characteristics

Predictors	Model of Women Who Self-Identified as Having a Disability vs. Women Without a Disability		Model of Women Who Reported a Cognitive Impairment vs. Women Without a Disability		Model of Women Who Reported an Activity Limitation vs. Women Without a Disability		Model of Women Who Reported Using Special Equipment vs. Women Without a Disability	
	Physical Assault Only ^a vs. No Violence	Sexual Assault vs. No Violence	Physical Assault Only ^a vs. No Violence	Sexual Assault vs. No Violence	Physical Assault Only ^a vs. No Violence	Sexual Assault vs. No Violence	Physical Assault Only ^a vs. No Violence	Sexual Assault vs. No Violence
Particular type of disability	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)	OR (95% CI)
Yes	1.18 (0.54-2.58) (referent)	7.61(3.10-18.65) [†] (referent)	1.99 (0.93-4.29) (referent)	5.19 (1.99-13.58) [†] (referent)	1.17 (0.55-2.51) (referent)	4.16 (1.50-11.50) [†] (referent)	1.07 (0.52-3.59) (referent)	3.49 (0.53-23.03) (referent)
No								
Age								
Younger	4.25 (2.37-7.62) [†] (referent)	7.94 (2.15-29.31) [†] (referent)	4.15 (2.34-7.36) [†] (referent)	5.19 (1.53-17.67) [†] (referent)	3.99 (2.26-7.04) [†] (referent)	5.37 (1.47-19.69) [†] (referent)	4.02 (2.27-7.12) [†] (referent)	4.29 (0.95-19.40) (referent)
Older								
Race								
Non-White	0.61 (0.35-1.05) (referent)	2.93 (1.24-6.93) [†] (referent)	0.72 (0.41-1.26) (referent)	2.15 (0.84-5.49) (referent)	.58 (0.33-1.02) (referent)	3.86 (1.45-10.32) [†] (referent)	0.65 (0.37-1.16) (referent)	4.00 (1.30-12.35) [†] (referent)
White								
Marital Status								
Not married	2.11 (1.26-3.53) [†] (referent)	1.43 (0.57-3.58) (referent)	1.85 (1.10-3.11) [†] (referent)	1.63 (0.61-4.35) (referent)	2.41 (1.43-4.07) [†] (referent)	1.41 (0.53-3.72) (referent)	2.14 (1.22-3.74) [†] (referent)	0.96 (0.32-2.89) (referent)
Married								
Education								
Lower	1.92 (1.10-3.33) [†] (referent)	0.73 (0.32-1.64) (referent)	1.92 (1.11-3.33) [†] (referent)	0.50 (0.20-1.25) (referent)	1.89 (1.09-3.23) (referent)	0.49 (0.19-1.27) (referent)	2.33 (1.32-4.17) [†] (referent)	0.47 (0.15-1.43) (referent)
Higher								
Employed								
Yes	1.32 (0.72-2.44) (referent)	1.18 (0.39-3.59) (referent)	1.43 (0.77-2.65) (referent)	1.54 (0.44-5.44) (referent)	1.53 (0.81-2.88) (referent)	1.21 (0.37-4.00) (referent)	1.40 (0.74-2.65) (referent)	1.50 (0.29-7.82) (referent)
No								

Note: OR = odds ratio; CI = Confidence Interval.

These findings have been adjusted using the sampling weights.

a. *Physical assault only* was defined as experiencing physical assault, but not sexual assault, in the past year.

b. *Sexual assault* was defined as experiencing sexual assault with or without physical assault in the past year.

c. Statistically significant associations. ($p < .05$).

Discussion

The current research is unique in being the first statewide investigation of a representative sample of noninstitutionalized women of which we are aware that compares women with and without disabilities in terms of the prevalence of physical and sexual assault perpetrated by a variety of individuals (e.g., intimate partners, other persons known by the victim). Bivariate analyses found that women with disabilities were significantly more likely than women without disabilities to have been sexually assaulted within the past year (1.5% vs. 0.6%, respectively), with sexual assault being most common among women who perceived themselves as having a disability (2.1%) and among women with cognitive impairments (1.7%). After controlling for several sociodemographic characteristics of the women, multivariable analyses found that women with some type of disability had more than 4 times the odds of being sexually assaulted within the past year compared to women without a disability (OR = 4.89, 95% CI = 2.21 to 10.83). Although the prevalence of sexual assault among women with and without disabilities was different, the extent of physical assault alone in the past year was quite similar between the two groups (approximately 2.0%), even after controlling for the women's sociodemographic characteristics (OR = 1.18, 95% CI = 0.62 to 2.27). Comparable findings resulted from four multivariable models that examined the women's assault experiences in the past year among specific subgroups of women with particular types of disabilities (one group being women who self-identified as having a disability, another group being women reporting a cognitive impairment, a third group being women reporting an activity limitation, and a fourth group being women who reported using special equipment). Therefore, compared to women without disabilities, women with specific types of disabilities appear to be at elevated risk of sexual assault but were at similar risk of physical assault.

Similar to past investigations of violence in women's lives, the current study found that women's current and ex-intimate partners were the most common perpetrators of violence, being the sole perpetrators among 44% of the women physically assaulted and 48% of those sexually assaulted. However, it is important to note that the physical and sexual assault victims often experience violence at the hands of others, including persons known to them, strangers, and multiple persons. Therefore, clinicians and researchers are encouraged to ask women about violence perpetrated by a wide range of individuals, and the context within which the violence occurs.

Echoing the findings of past studies on violence, several sociodemographic characteristics of the women were found to be associated with assault. In particular, young women were much more likely than older women to have experienced physical assault alone and sexual assault, non-White women were more likely than White women to have experienced sexual assault, and women who were not married were more likely than married women to have experienced physical assault alone.

The findings from the current research should be interpreted in light of the current study's methodological constraints. For example, by their nature, telephone surveys are

limited to persons living in households with telephones; thus, they may underrepresent particular groups of persons, such as the poor, those located in rural or inner city areas, and renters (Keeter, 1995); however, such underrepresentation is likely to be minimal in that 94% of Americans live in households with telephones (Lavrakas, 1993). Another concern is that women with particular types of disabilities may not be likely, or able, to participate in telephone surveys (e.g., women with communication impairments who use text telephones (TTYs), women with mobility impairments who may not be able to answer a ringing telephone within the number of rings typically allowed by survey researchers). In addition, women with disabilities who live in institutionalized settings, such as nursing homes or residential homes, were not included in the survey sample. Finally, the sensitive nature of the topic of study (physical and sexual assault) may lead to response bias that may result in underestimation of the true extent of such violence.

Despite these study limitations, the findings of the current research should alert those concerned with women's health and well-being that women with disabilities are at least as likely as other women to be victims of physical assault, and that women with disabilities may be at increased risk for sexual assault. Even though the current study found that fairly small percentages of women experience physical and/or sexual assault each year (e.g., approximately 3% of all women were physically and/or sexually assaulted), these percentages translate into thousands of women being victimized annually. For example, using the year 2000 census estimates to extrapolate our findings, almost 82,000 North Carolina women are physically assaulted each year, and more than 25,000 are sexually assaulted. Given that women with disabilities are more likely than other women to be regularly seen by health care providers, and that women with disabilities have a higher risk of sexual assault (and a similar risk of physical assault) compared to other women, health care providers are urged to screen these patients for physical and sexual violence, and to ensure that identified victims are provided with appropriate interventions and/or referrals. Implementation of such screening and referral procedures mandates that clinicians be well trained concerning violence issues and how to ask women about the violence in their lives. In addition, given the increased prevalence of sexual assault among women with disabilities, agencies that provide services to victims of violence, such as domestic violence shelters and rape crisis centers, should ensure that their services are appropriate and accessible for women with various types of disabilities, and that their staff and volunteers receive training on issues related to serving clients with disabilities. These would be important steps toward ensuring that all women who suffer from physical and/or sexual violence, including women with disabilities, are provided with optimal care for this important concern.

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Sandra L. Martin, PhD, is an epidemiologist who is a Professor in the Department of Maternal and Child Health at the University of North Carolina at Chapel Hill (UNC-CH). She is also a core faculty member at the Injury Prevention Research Center at UNC-CH. Her research, teaching, and public health service focus on the health of women and children, with particular attention paid to the role that violence plays in their lives.

Neepa Ray, MS, is a biostatistician with Rho, Inc. She was a graduate student in the Department of Biostatistics at the University of North Carolina at Chapel Hill when this work was carried out.

Daniela Sotres-Alvarez, MS, is a biostatistician who is working as a statistical analyst and database manager with researchers from the Center for Research in Nutrition and Health at the Instituto Nacional de Salud Pública in Mexico. She is also a professor in biostatistics at the Mexican Graduate School of Public Health.

Lawrence L. Kupper, PhD, is Alumni Distinguished Professor and associate chair in the Department of Biostatistics at the University of North Carolina, Chapel Hill. His areas of expertise concern the development and application of state-of-the-art statistical methods for the design and analysis of public health studies, especially in the areas of environmental epidemiology, environmental sciences, toxicology, and domestic violence.

Kathryn E. (Beth) Moracco, PhD, MPH, is a Research Scientist at the Chapel Hill Center of the Pacific Institute for Research and Evaluation (PIRE), and Adjunct Assistant Professor in the Departments of Maternal and Child Health and Health Behavior and Health Education at UNC-Chapel Hill. Her research and advocacy interests include the effects of violence on women's physical and mental health, and participatory evaluation of community-based violence prevention programs.

Pamela A. Dickens, MPH, is the women's health coordinator at the North Carolina Office on Disability and Health, a collaborative partnership between the Division of Public Health and the Frank Porter Graham Child Development Institute at University of North Carolina—Chapel Hill. She is also adjunct faculty with the UNC School of Public Health. As coordinator, she is involved with overseeing activities to improve the health of women with disabilities. Currently, one area of focus in the women's health initiative is addressing domestic violence and sexual assault against women with disabilities.

Donna Scandlin, MEd, is the former director of the North Carolina Office on Disability and Health (NCOHDH), a partnership effort between the NC Division of Public Health and the Frank Porter Graham Child Development Institute at University of North Carolina—Chapel Hill that promotes the health and wellness of persons with disabilities. One area of research, information, and intervention of the NCOHDH concerns domestic violence and sexual assault in the lives of women with disabilities.

Ziya Gizlice, PhD, is a statistician at the State Center for Health Statistics. He heads the Survey Operations Unit. He is also the project director and coordinator for Behavioral Risk Factor Surveillance System (BRFSS) and Child Health Assessment and Monitoring Program.