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Associations between Recent Sexual Violence, Health Outcomes, and Risk Behaviors in New Mexico, 2016-2018

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Sexual violence is a serious public health issue that directly impacts millions of people in the United States and over 200,000 in New Mexico. According to the National Intimate Partner and Sexual Violence Survey for 2010-2012, one in five (20.4%) New Mexican women and one in twenty (5.5%) New Mexican men experienced completed or attempted rape during those years.[1] The long-term impacts of sexual violence victimization on suicide risk, adverse mental health outcomes, and substance misuse are well documented. A review and meta-analysis of estimates of the association between sexual assault and eight forms of psychopathology including bipolar conditions, depression, and anxiety found that sexual assault was a significant risk factor for all forms of psychopathology assessed.[2] Research has also established an association between non-contact child sexual abuse and poorer health-related quality of life and mental health.[3] This report analyzes annual sexual violence in New Mexico from 2016 through 2018 and assesses if recent experience of sexual violence is associated with other health risk factors.

Methods

The New Mexico Behavioral Risk Factor Surveillance System (NM BRFSS) is part of an ongoing, nationwide surveillance system that routinely collects data on the prevalence of a variety of health conditions and behaviors that affect health.[3] The surveillance system uses a telephone survey to collect data in all 50 states, the District of Columbia, Guam, Puerto Rico and the U.S. Virgin Islands. The CDC established the BRFSS in 1984 with 15 states participating. Eligible individuals include non-institutionalized adults (aged 18 years or older). New Mexico began participating in the BRFSS in 1986. Participation in the survey is voluntary, and all data collected are confidential.

From 2016 to 2018, seven questions were included in the NM BRFSS pertaining to sexual violence victimization. This report used all available data for analysis to maximize the sample size. The questions in the BRFSS sexual violence module were based on a measure developed by Koss, Gidycz, and Wisniewski and tested for reliability.[4,5] Though lifetime experience of sexual assault is asked as part of the sexual violence module, experience of past year sexual assault was utilized for analysis to reduce the influence of possible mediators. Non-contact sexual violence is only asked about within the past year; therefore, examining past year sexual assault also allows for more accurate comparisons to the outcome variables.

This report also examined current depression using a variable calculated from a series of 8 questions asked on the NM BRFSS from the Patient Health Questionnaire, a validated tool used for diagnosing depression and assessing its severity.

Utilizing logistic regression, data from the BRFSS were analyzed to assess the association between recent sexual assault and: 1) mental health outcomes (current depression, suicidal ideation, and suicide attempts); 2) general health outcomes (any days of poor physical/mental health that interrupted normal activity and fair/poor perceived health status); and 3) health risk behaviors (current smoker status and heavy alcohol consumption). Sexual assault was defined as either experiencing completed or attempted non-consensual sex in the past 12 months or non-contact sexual violence in the past 12 months. Non-contact sexual violence included unwanted flashing, peeping, sexual harassment, or being made to look at sexual photos or movies. Each outcome variable was modeled separately with non-contact sexual violence and sexual assault as separate predictors.

Based on previous research, demographic characteristics used to control for potential confounders for logistic regression included gender, race, age, education level, employment status, marital status, and annual household income.[6,7] Therefore, these variables were also included in the current analyses to control for confounding, along with having a disability, due to its correlation to both sexual violence victimization and the

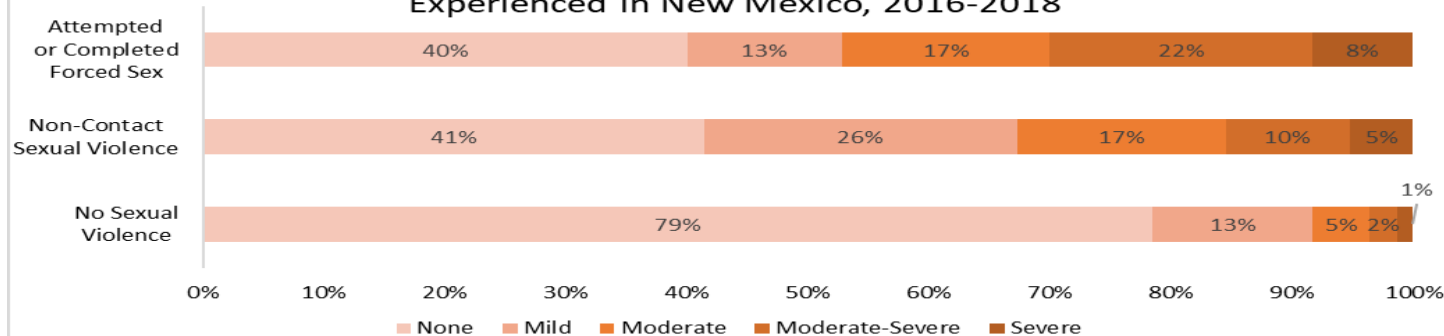
health risk factors examined.[8,9] A new variable was created to control for gender. An individual's gender was categorized as cis-man or cis-woman (meaning the man or woman's gender identification (ID) matches their sex assigned at birth), as well as transgender/ gender non-conforming individual (meaning the individual's gender identification does not align with their sex assigned at birth). Respondents whose reported birth sex and gender ID were discordant, or whose gender ID was reported as transgender or gender non-conforming were categorized as transgender/gender non-conforming. All others were categorized as cis-man or cis-woman based on their gender ID.
Data management and analysis were completed with SAS version 9.4 (SAS Institute Inc., Cary, NC). Survey respondents with a "don't know," "refused," or missing response were excluded from this analysis.

Results
A total of 19,243 individuals responded to the sexual violence module in the NM BRFSS from 2016 to 2018. The data from these years showed that 1.6% of the statewide population experienced attempted or completed non-consensual sex within the past 12 months, and 2.0% of the statewide population experienced non-contact sexual violence. No statistically significant difference was found for either of the predictor variables among the years studied. For the variable assessing past year history of attempted or completed non-consensual sex, 18.1% (N=3,495) of the responses were missing and 17.8% (N=3,422) of the responses were missing for the variable assessing non-contact sexual violence (data not shown).

Among those who reported experiencing sexual assault within the past 12 months, 47% also reported current depression during the same years (2016-2018); 31% had thoughts of suicide; 9.0% had made a suicide attempt; 68.8% had experienced at least one day of poor health that interrupted normal activity in the past 30 days; 32.4% perceived their health as fair or poor; 33.6% were current smokers; and 3.7% reported heavy alcohol use in the past month. In comparison, among the general population from 2016 through 2018, 9.8% had current depression; 6.3% had thoughts of suicide in the past 12 months; 1.1% had made a suicide attempt in the past year; 46.5% had experienced at least one day of poor health that interrupted normal activity in the past 30 days; 21.3% perceived their health as fair or poor; 16.1% were current smokers; and 5.4% reported heavy alcohol use in the past month (data not shown). These differences in prevalence were statistically significant ($p \leq 0.05$). Rates of heavy alcohol consumption were comparable for those who had experienced recent sexual assault compared to those who had not. Severity of depression increased with experience of recent sexual violence (see Figure 1).
Non-contact sexual violence had a statistically significant association with each of the studied health outcomes or risk factors before adjustment [crude odds ratio (OR)], except for fair or poor perceived health and heavy alcohol consumption, as shown in Table 1.

After adjusting for control variables, non-contact sexual violence remained a statistically significant predictor for thoughts of suicide in the past 12 months (adjusted OR=4.9); and any days of poor physical or mental health that interrupted normal activity (adjusted OR=2.0). Reported experience of recent sexual assault alone as a variable was significantly associated with each of the health outcomes or risk factors except for heavy alcohol consumption. After adjusting for control variables, experience of recent sexual assault remained a statistically significant predictor for current depression, thoughts of suicide, any days of poor physical/ mental health that interrupted normal activity, and current smoker status.

Discussion
Sexual assault/rape is consistently one of the most underreported violent crimes, with only 24.9% of survivors from 2018 reporting their assault to law enforcement.[10] Therefore, random-sample self-report surveys



are the best method for estimating the most realistic rates of victimization.[11] Furthermore, this report examined non-contact sexual violence, which is infrequently described in scientific literature.[3]
Consistent with prior research, sexual assaults within the past year were significantly associated with current depression, thoughts of suicide, experiencing any days of poor health in the past month, and being a current smoker.[2,6] This study did not find significant associations between recent sexual assault and suicide attempts, fair or poor perceived health status, or heavy alcohol consumption. Previous research has focused on lifetime experience of sexual assault and has found significant associations between lifetime experience of sexual assault and these health risk factors.[2,6] The difference in findings between the current report and prior research could be caused by a delay in effects of sexual assault.

Historical data on sexual violence victimization was gathered in 2005; however, this data cannot be compared to current years due to differences in weighting. Observed trends may change over time or with the collection of additional responses, emphasizing the importance of continuing to gather surveillance data in future years.

This report found statistically significant associations between experience of non-contact sexual violence within the past year and: 1) thoughts of suicide in the past year and 2) experiencing poor mental or physical health that interrupted normal activity. No other research examining associations of non-contact sexual violence with other mental or physical health measures among adults was identified. Consequently, this underlines the importance of continuing to study non-contact sexual violence to understand its relationship to health risk factors and identify population-wide disparities among types of victimization.

This report has several limitations. Because the report uses cross-sectional data, it can only examine associations and cannot establish causation. Non-response bias may be present due to the volume of missing responses to the sexual violence victimization questions. Additionally, the report only examines associations of sexual violence that occurred in the 12 months preceding the survey to other health risk factors and outcomes. Including lifetime experience of sexual assault might yield significant associations to downstream health behaviors or outcomes such as perceived health status.

Given the associations observed between both recent sexual violence and other adverse health factors, primary prevention efforts should broadly aim to prevent perpetration of all forms of sexual violence. The New Mexico Department of Health funds efforts to prevent sexual violence by promoting healthy relationships and positive ways for bystanders to intervene; working with businesses and organizations to create protective environments through policy review; and efforts to engage and empower communities in their own prevention initiatives. Moving forward, statewide legislation for education on affirmative consent provided in schools is needed to change social norms and prevent incidents of sexual violence. Additionally, agencies involved in prevention work and direct services for sexual violence need adequate funding to combat staff burnout and turnover. The data also indicate a continued need for collaboration between the sexual violence prevention and mental health sectors. Work to address mental health should be population-based and address underlying social determinants of mental health such as housing and poverty. Additionally, mental health interventions should incorporate both person-centered and rights-based approaches that do not re-stigmatize or traumatize survivors of sexual violence.

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Table 1. Crude and Adjusted Odds Ratios (95% confidence intervals) for Health Outcomes or Risk Factors by Experience of Recent Sexual Violence,* New Mexico, 2016-2018

	Non-contact Sexual Violence		Sexual Assault in Past 12 Months	
	Crude Odds Ratio (95% Confidence Interval)	Adjusted Odds* Ratio (95% Confidence Interval	Crude Odds Ratio (95% Confidence Interval)	Adjusted Odds+ Ratio (95% Confidence Interval)
Current depression	**2.3 (1.1-4.7)**	0.8 (0.3-2.1)	**8.8 (3.9, 19.8)**	**5.2 (1.6-17.1)**
Thoughts of suicide in the past 12 months	**6.8 (4.6-10.3)**	**4.9 (3.0-8.1)**	**7.3 (4.5-11.8)**	**4.4 (2.4-7.9)**
Suicide attempts in the past 12 months	**3.8 (1.2-12.0)**	2.1 (0.7-6.3)	**10.8 (3.3-35.0)**	2.2 (0.8-6.4)
Any days of poor physical/mental health that interrupted normal activity	**2.4 (1.5-3.8)**	**2.0 (1.2-3.3)**	**2.6 (1.5-4.4)**	**2.0 (1.1-3.7)**
Fair/Poor perceived health status	1.1 (0.7-1.6)	0.9 (0.5-1.6)	**1.8 (1.1-2.8)**	1.6 (0.8-3.1)
Current smoker	**1.8 (1.2-2.7)**	1.2 (0.7-1.8)	**2.7 (1.8-4.2)**	**2.1 (1.3-3.4)**
Heavy alcohol consumption	3.2 (0.5-18.8)	3.9 (0.9-16.5)	0.7 (0.1-5.0)	<0.001 (<0.001-<0.001)

* Non-contact sexual violence and sexual assault
+Models adjusted for the following control variables: gender, race, age, education level, employment status, annual household income, marital status, and having a disability.
Bolded values are significant at $p<0.05$.