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Suicide Among RNs: An Analysis of 2015 Data from the National Violent Death Reporting System

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Abstract

Background: Suicide is now the 10th leading cause of death in the United States. Suicide rates for health care providers are thought to be higher than for people in other occupations because of job strain and burn-out. Despite the National Academy of Medicine's Action Collaborative on Clinician Well-Being and Resilience, which focuses on reducing stress and preventing suicide, a shortage of data limits our understanding of nurse suicide. Neither employers nor professional nursing associations track suicide data.

Purpose: To determine the number of suicides and estimated rate of suicide among RNs, using data from the National Violent Death Reporting System (NVDRS).

Methods: We extracted data from the NVDRS, which is based on death certificates, coroner reports, and law enforcement reports, for the year 2015. The National Institute for Occupational Safety and Health's Industry and Occupation Computerized Coding System was used to code the data. Industry and occupation coding experts reviewed the coding for accuracy.

Results: Analysis of 2015 NVDRS data from 17 states showed that among civilian employed nurses ages 16 to 64 years, the estimated suicide rates for female and male nurses (11.4 and 29.3 per 100,000 nurses, respectively) were each higher than the rates for the comparable total population (8.2 and 26.1 per 100,000 people, respectively).

Conclusions: Our findings indicate that RNs may die by suicide at higher rates than the total employed population in the 16-to-64-year age range. Implementation of evidence-based approaches to prevent suicide are warranted.

Keywords

nurse; self-harm; suicide; violent death

Between 1999 and 2017, the suicide rate among adults between the ages of 16 and 64 years in the United States increased by one-third, reaching 18 per 100,000 in 2017.[1] There is evidence that health care professionals have even higher suicide rates. An analysis of

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national data from Denmark found that providers from multiple specialties, including nurses, had significantly elevated risks for suicide compared with people in the general population.[2] Similarly, a large New Zealand study identified nurses and pharmacists as being at higher risk for suicide than people in other occupations.[3]

A recent analysis by the Centers for Disease Control and Prevention (CDC) of data for Standard Occupational Classification (SOC) major groups in 17 U.S. states offers further support.[4] In that analysis, for the year 2015, Peterson and colleagues reported estimated suicide rates in the health care practitioners and technical occupations group of 25.6 for men and nine for women per 100,000 noninstitutionalized civilian workers ages 16 to 64 years.[4] For comparison, the groups with the highest estimated suicide rates for men and women were, respectively, the construction and extraction group (53.2 per 100,000 such persons), and the arts, design, entertainment, sports, and media group (15.6 per 100,000 such persons). The SOC health care practitioners and technical occupations group covers a broad array of professions, including nurses, physicians, chiropractors, and veterinarians, and as such, it might mask disparities in suicide rates among specific provider subgroups.

The causes of suicide are multifactorial. Given that many adults spend significant time at their jobs, occupational factors warrant investigation. Research has shown that nurses experience high rates of burnout, including the dimension of emotional exhaustion.[5] One risk factor may be that nurses may encounter suicidal patients—indeed, a Japanese study found that 55% of psychiatric nurses reported experience with completed inpatient suicide—and their own mental health can be adversely affected.[6] Previous researchers have examined suicide by self-poisoning among health care professionals, and posited that access to lethal means is another risk factor.[3, 7] Yet suicide among RNs is not tracked by major employers nor by professional associations such as the American Nurses Association.[8] One suicide rate estimate for RNs (6.8 per 100,000 person-years) is decades old, based on data from the 1982 Nurses' Health Study plus 14 years' follow-up.[9] A more recent estimate (18.5 per 100,000 person-years) is based on data from just one California county (San Diego County) for the years 2005 through 2015.[10]

In January 2017, the National Academy of Medicine launched the Action Collaborative on Clinician Well-Being and Resilience.[11] One of its primary goals is to raise the visibility of anxiety, burnout, depression, stress, and suicide among health care professionals. Yet despite this initiative, there continues to be a shortage of relevant data. This limits our understanding of nurse suicide.

Study purpose.

The aim of this study was to determine the number of suicides and estimated rate of suicide among RNs, using 2015 data from the CDC's National Violent Death Reporting System (NVDRS) (www.cdc.gov/violenceprevention/datasources/nvdrs) and methods described in the aforementioned study by Peterson and colleagues.[4]

METHODS

Data collection.

This study used publicly available NVDRS data. Specifically, we used 2015 NVDRS data from 17 states (Alaska, Colorado, Georgia, Kentucky, Maryland, Massachusetts, New Jersey, New Mexico, North Carolina, Ohio, Oklahoma, Oregon, Rhode Island, South Carolina, Utah, Virginia, and Wisconsin) for suicide decedents ages 16 to 64 years. (Although nurses at the start of their careers tend to be in their early 20s, age 16 is typically used in defining parameters for the U.S. workforce.) The NVDRS is a state-based reporting system that aggregates data on violent deaths—including suicide—from a variety of sources, including death certificates, coroner and medical examiner reports, and law enforcement reports, in order to better understand and prevent violent deaths. No personally identifying information is collected.

In the aforementioned study for the CDC, Peterson and colleagues translated decedents' usual lifetime occupations (as reported on death certificates per the NVDRS database) to SOC codes.[4] This was done by industry and occupation coding experts through a combination of software algorithms (the National Institute for Occupational Safety and Health [NIOSH] Industry and Occupation Computerized Coding System [NIOCCS] version 3) and further manual review by the coding experts. For the present study, we used the coded NVDRS data from that earlier study to identify decedents with detailed SOC group codes indicating the following registered nursing occupations, including specialties: RNs (SOC code 29–1141), nurse anesthetists (SOC code 29–1151), nurse midwives (SOC code 29–1161), and NPs (SOC code 29–1171). For the sake of simplicity, in this article we report all these professionals under the term RNs. We did not examine decedent data for other nursing professionals, such as certified nurse assistants, LPNs, and LVNs, because we wanted to focus specifically on RNs, who bear much of the responsibility of care in nearly all clinical settings.

An estimated count of the 2015 working population of registered nursing professionals (identified by the same SOC codes) in the same age range and in the same 17 states as the NVDRS decedents was then derived from the Current Population Survey Annual Social and Economic Supplement (CPS ASEC), a long-running national administrative dataset sponsored jointly by the U.S. Census Bureau and the U.S. Bureau of Labor Statistics. CPS ASEC data for the year 2016 were used because that data refers to respondents' longest-held job during the previous year.

Data analysis.

Suicide rates were calculated by dividing the number of RN suicide deaths by the working population of RNs, then multiplying that result by 100,000. Confidence intervals were calculated using the methods described by Peterson and colleagues.[4]

Regarding calculations of suicide rates, it's important to note that the sources for this study's numerator and denominator data were not a perfect match. NVDRS data drawn from death certificates reflect decedents' usual lifetime occupation, while CPS ASEC data, collected via self-report, reflect occupation within the past year. We sought to minimize the mismatch

between these data sources by excluding decedents whose NVDRS data from coroner, medical examiner, or law enforcement reports identified them as not working at time of death. To accomplish the latter, we searched NVDRS current occupation information using keywords (for example, “retired”) as described by Peterson and colleagues, in order to exclude decedents not working at time of death from rate calculations.[4]

RESULTS

Sample.

In the 17 states of interest, for the year 2015, there were 152 suicide decedents whose death certificates indicated a usual lifetime occupation as a registered nursing professional. Twenty-four of those decedents were identified by NVDRS non–death certificate data sources as not working at time of death and were excluded, resulting in a total of 128 decedents included in rate calculations.

Findings.

Overall, the estimated suicide rate was 13 per 100,000 RNs. The estimated suicide rates among female and male nurses were, respectively, 11.4 and 29.3 per 100,000 RNs. (For more details, see Table 1.)

DISCUSSION

The estimated suicide rates we found for civilian employed female and male nurses ages 16 to 64 years are each higher than such estimates for women and men in the comparable 2015 total population (8.2 and 26.1 per 100,000 people, respectively).[1] Notably, in the 17 states for which data were analyzed, men made up 9% of the working nurse population ages 16 to 64 years, yet accounted for 20% of suicide decedents. Although the NVDRS has expanded its reach to all 50 states, some states are still in the earlier stages of data collection.[12] Once more complete data are available, it should be possible to assess suicide rates by occupation nationwide and monitor such rates over time.

Our findings are concerning for nursing professionals, health care employers, and policymakers, as well as the general public. Routine monitoring of suicide among nursing professionals, perhaps led by professional associations, could provide essential data with which to monitor trends and mark progress in reducing suicide incidence. The U.S. Health Resources and Services Administration’s Health Workforce Simulation Model indicates that nursing shortages are projected for several states in the coming decade[13]; all states can consider our findings within the context of efforts to address workforce recruitment and retention issues.

Health care employers and professional organizations can do much to help prevent nurse suicide. A systematic review by Milner and colleagues examined workplace suicide prevention interventions across a range of high-risk occupations, including trauma center workers.[14] The interventions included educating and training workers and supervisors to recognize the signs and symptoms of distress in colleagues, promoting a sense of connection among employees, identifying and supporting people at risk, and creating protective

environments. Some beneficial effects were evident, although more research on efficacy was needed.[14] In a recent publication, *Preventing Suicide: A Technical Package of Policies, Programs, and Practices*, aimed at helping communities and states to address suicide in the general population, the CDC emphasizes the need for a comprehensive approach.[15] Identified strategies include enhancing social connectedness; strengthening economic support; expanding access to and delivery of suicide care; and implementing practices that identify and support people at risk, such as decreasing stigma around seeking help and providing appropriate referrals.

Favorable nursing practice environments include enhanced autonomy of and control by nurses, good teamwork between nurses and physicians, participation in hospital initiatives that affect nursing care, and supportive relationships with management. (Indeed, hospitals that create and maintain such environments can achieve Magnet recognition through the American Nurses Credentialing Center.) One suicide prevention intervention specific to physicians and nurses is the Healer Education Assessment and Referral (HEAR) program (https://medschool.ucsd.edu/som/hear). Codeveloped by the American Foundation for Suicide Prevention and the University of California San Diego's medical school faculty, HEAR proactively assesses providers' mental health and associated risk factors through anonymous self-assessment and educates them about mental health, including suicide risk.[16–18] Those whose scores indicate moderate to high risk of depression or suicidal ideation are referred to counselors for further assessment and care. Further research is needed to support the development, implementation, and maintenance of evidence-based interventions that reduce suicide risk among RNs. Investigation to determine suicide rates among certified nurse assistants, LPNs, and LVNs is also warranted.

For a list of useful resources, see Resources for Workplace Suicide Prevention.

Limitations.

Study results are based on data from 17 U.S. states and are not nationally representative. As noted earlier, the sources for numerator and denominator data aren't a perfect match, and this mismatch may have affected results. Moreover, the estimated suicide rate among male RNs was based on a relatively small number of decedents in a relatively small working population, and that result should be interpreted with caution. This study did not address risk factors for suicide such as depression, personality disorders, and a history of self-harm (including suicide attempts), which have been associated with suicide among health care professionals.[19, 20] Nor did it address risk factors related to the work environment, such as low levels of job control and of support from colleagues and supervisors, which have been associated with suicide in the general population.[21]

CONCLUSIONS

This study's findings speak directly to the importance of addressing suicide risk among nursing professionals. There is a clear need for action on the parts of health care employers, organizations, and policymakers, as well as nurses themselves. Routine monitoring of workplace suicide is required to identify trends. Employers can help by implementing workplace suicide prevention programs.

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Resources for Workplace Suicide Prevention

Center for Workplace Mental Health

http://workplacementalhealth.org/Mental-Health-Topics/Suicide-Prevention

From the American Psychiatric Association Foundation. Offers a range of tools and resources for employers, managers, and coworkers.

National Suicide Prevention Lifeline

https://suicidepreventionlifeline.org

Help is available 24/7 at (800) 273-TALK (8255).

Workplace Suicide Prevention

https://workplacesuicideprevention.com

Founded by the American Association of Suicidology and other partners. Offers guidelines and other resources for workplaces and organizations

Table 1.

Estimated 2015 Suicide Rates Among RNs Ages 16–64 Years[a] (N = 128)

Measure	Number and Estimated Rate (95% CI)
Female	
Decedents[b]	102
Working population[c]	894,195
Rate per 100,000	11.4 (9.2–13.6)
Male	
Decedents[b]	26
Working population[c]	88,717
Rate per 100,000	29.3 (19.1–42.9)
Total	
Decedents[b]	128
Working population[c]	982,912
Rate per 100,000	13 (10.8–15.3)

CI = confidence interval.

[a]Estimates are based on data from the National Violent Death Reporting System for 17 U.S. states: Alaska, Colorado, Georgia, Kentucky, Maryland, Massachusetts, New Jersey, New Mexico, North Carolina, Ohio, Oklahoma, Oregon, Rhode Island, South Carolina, Utah, Virginia, Wisconsin.

[b]Decedents were categorized by usual occupation as reported on death certificates and included those assigned Standard Occupational Classification (SOC) codes for RNs (29–1141), nurse anesthetists (29–1151), nurse midwives (29–1161), and NPs (29–1171).

[c]The civilian noninstitutionalized working population was estimated for the same year, U.S. states, age range, and nursing occupation SOC codes from the Current Population Survey Annual Social and Economic Supplement.