HHS Public Access

Author manuscript

J Nurs Regul. Author manuscript; available in PMC 2024 February 26.

Published in final edited form as:

J Nurs Regul. 2023 January ; 13(4): . doi:10.1016/s2155-8256(23)00032-7.

Psychosocial Factors Associated With Alcohol Use Among Nurses: An Integrative Review

Maile Mercer, MSN, RN, CCRN [PhD candidate],
New York University Rory Meyers College of Nursing, New York, New York.

Amy Witkoski Stimpfel, PhD, RN [Assistant Professor],
New York University Rory Meyers College of Nursing.

Victoria Vaughan Dickson, PhD, CRNP, FAHA, FHFSA, FAAN [Professor]
New York University Rory Meyers College of Nursing

Abstract

Background: Understanding alcohol use among nurses may inform interventions related to the coping mechanisms nurses use for workplace stress and trauma. Alcohol use can be caused by a variety of factors and has serious implications on a nurse's personal health and professional practice. Understanding psychosocial factors and preventive measures may assist in the development of interventions to improve coping mechanisms and reduce the incidence of alcohol misuse.

Purpose: To review the psychosocial factors and preventive measures associated with alcohol use among nurses.

Methods: For this integrative review, systematic searches were conducted in CINAHL, PubMed, PsychNet, and ProQuest Central. Included studies were peer-reviewed and addressed alcohol use among nurses in the United States. Articles were appraised using methods-specific tools indicated by the Whittemore and Knafl framework. Data were extracted and themes identified using constant comparison.

Results: Of 6,214 nonduplicate articles screened, 78 were selected for full-text review and 13 were included after application of inclusion criteria. Synthesis resulted in four themes: (1) occupational stress and trauma, (2) workplace characteristics, (3) mental health implications, and (4) protective factors. The data show that workplace stress and trauma contribute to alcohol use among nurses. Night shifts, rotating shifts, and shift length are factors related to alcohol use, as are mental health problems such as anxiety, depression, trauma, and suicide. Protective factors that reduce alcohol use among nurses include faith, resilience, and perceived organizational support.

Conclusion: Alcohol use among nurses presents challenges for the nursing profession and regulatory bodies with specific and interrelated phenomena related to the role and identity of nurses. A better understanding of these factors through research will facilitate a healthier nursing workforce that is better prepared to take on the rewards and challenges of a nursing career.

Corresponding author: Maile Mercer, amm9848@nyu.edu.

Keywords

Nurses; alcohol; occupational; stress; trauma

Nurses support patients and communities in living healthy lives. Integral to their work is safeguarding their own well-being. The American Nurses Association (ANA) defines a healthy nurse as one who "actively focuses on creating and maintaining a balance and synergy of physical, intellectual, emotional, social, spiritual, personal and professional wellbeing" (Carpenter, 2013). The *Competencies for Professional Nursing Education* require that nurses demonstrate healthy behaviors through self-care that encourage wellness and resiliency (American Association of Colleges of Nursing, 2021). Historically, ill-health among nurses has been seen as an inevitable consequence of long hours, demanding work, and occupational stress and trauma related to nursing practice (ANA, n.d.). As a result, some nurses may use coping mechanisms such as drugs and alcohol, which can cause lifelong health problems and jeopardize their professional nursing license. In contrast, nurses who pursue healthy lifestyles become better role models, advocates, educators, and providers and promoters of healing for their patients and communities (ANA, n.d.).

Alcohol Use Among the General Population

It is in the nation's best interest for all individuals to be as healthy as possible, and the negative mental and physical effects of excessive alcohol use is a barrier to wellness (Clayton et al., 2015). According to the Centers for Disease Control and Prevention (CDC), alcohol may be consumed in moderation by limiting consumption to no more than two drinks per day for men and no more than one drink per day for women (CDC, 2022). Alcohol affects every organ in the human body. Consuming more than the recommended amount of alcohol can lead to injuries, reproductive health problems, cardiovascular disease, depression, anxiety, and social problems such as loss of employment, marriage, or family structure (CDC, 2022).

Additionally, problematic drug and alcohol use was deemed the nation's number one health problem for nearly 2 decades prior to the COVID-19 pandemic and is a contributing factor in the deaths of millions of Americans each year (Strobbe & Crowley, 2017). The Substance Abuse and Mental Health Services Administration (n.d.) identified alcohol as "the most frequently used and misused substance in the United States." For adults younger than 65 years, alcohol-related deaths outpaced deaths from all causes in 2020 (White et al., 2022). The frequency of alcohol use in the United States in 2020 increased overall by 17% since 2019, with a 41% increase in heavy drinking among people who identify as women (Pollard et al., 2020).

Alcohol Use Among Nurses

Alcohol use is considered a problem when it leads to social, emotional, and/or physical difficulties (CDC, 2022). For nurses, alcohol use that becomes mentally, socially, and/or physically unhealthy has the potential to interrupt all domains of nurse health identified by the ANA. Approximately 1 in 10 nurses in the United States met the diagnostic criteria

for substance use disorder prior to the COVID-19 pandemic (Monroe et al., 2013). Of nurses diagnosed with substance use disorder, 77% used alcohol and/or opioid narcotics (Foli & Thompson, 2019). Nurses have described substance use as a coping mechanism for workplace stress, and alcohol in particular is sometimes encouraged as a way of coping with workplace stress and occupational trauma (Ross et al., 2018). Alcohol use can lead to impaired nursing practice and thus to serious and potentially deadly mental and physical health consequences for both nurses and their patients. Nurses who develop drinking problems are at risk of losing their nursing license and may face serious physical health, mental health, legal, professional, and financial consequences.

Purpose

The present integrative review examines psychosocial factors associated with alcohol use among nurses in the United States. To the best of our knowledge, there are no known integrative reviews on this topic to date. A robust understanding of factors contributing to nurse alcohol use will guide development of policy, research, and education interventions and will help to reduce alcohol and substance use problems among nurses. Psychosocial factors are defined as characteristics that affect an individual and the way that person relates to their social environment (Thomas et al., 2020). Psychosocial factors may affect an individual's physical, mental, and spiritual health in both adaptive and maladaptive ways (Thomas et al., 2020). A deeper understanding of the psychosocial factors associated with alcohol use among nurses will help nurses live happier, healthier, and whole personal and professional lives mentally, spiritually, and physically so that they may better serve and bring healing to their patients and communities.

Methods

Design

Following Whittemore and Knafl's (2005) integrative review methodology, we synthesized and analyzed the existing quantitative and qualitative literature to evaluate a range of viewpoints related to alcohol use in nursing. The intent of integrative reviews is to explicate the existing research through methodical examination, critical appraisal, analysis, and synthesis of quantitative and qualitative literature. Rigorous integrative reviews enable evaluation and synthesis of various viewpoints on a given phenomenon with resultant knowledge relevant to the given topic (Whittemore & Knafl, 2005).

Literature Search

In collaboration with a health sciences reference librarian, and using strategies adapted for each database (CINAHL, PubMed, PsychNet, and ProQuest Central), MeSH terms, subject headings, and text-word searches were constructed to collect search results that were comprehensive, systematic, and representative of all available literature. Databases were searched between March 28, 2022, and April 13, 2022. Searches included terms such as "alcohol," "nurse," "coping behavior," "social drinking," and numerous related terms, which are summarized in Table 1. Given the limitations of database search functionality, it was not possible to construct searches that distinguished nurse use of alcohol from nurses

treating patients who use alcohol. After consulting with a health sciences reference librarian, it was determined that a substantial amount of hand-screening of database results would be necessary to ensure comprehensive assessment of search results. Additionally, based on recommendations by Whittemore and Knafl (2005), reference lists and journals were searched concurrently for additional articles and resources.

Inclusion and Exclusion Criteria

Inclusion criteria for this integrative review were full-text, English language, peer-reviewed studies published since 1997 that addressed psychosocial factors associated with alcohol use among nurses. Nurses were defined as licensed practical nurses, registered nurses, and advanced practice nurses such as nurse practitioners, certified nurse midwives, clinical nurse specialists, or certified registered nurse anesthetists. Due to geographic and cultural differences surrounding alcohol consumption, articles were excluded if they examined a population outside of the United States. To ensure relevant and timely data, studies were included if they were published within the past 25 years. For the purposes of this integrative review and given the paucity of literature regarding alcohol use among nurses, the criteria for alcohol use was broadly defined. Dissertations and non–peer-reviewed articles (e.g., commentaries, editorials, etc.) were excluded. Studies that did not disaggregate alcohol from substances used or nurses from other healthcare workers, did not examine psychosocial factors associated with alcohol use, or focused only on substance use relapse among nurses were also excluded.

Data Analysis

Data were reduced through the process of constant comparison (Whittemore & Knafl, 2005). Final articles were read and analyzed iteratively to produce a robust understanding of the study data and findings. Quality of the cross-sectional and cohort quantitative studies was appraised using the Strengthening the Reporting of Observational Studies in Epidemiology tool (von Elm et al., 2014). Qualitative studies were appraised using the Critical Appraisal Skills Programme checklist for qualitative studies (Critical Appraisal Skills Programme, n.d.-b). The mixed methods study was appraised using both tools. Conclusion drawing and verification for this review involved high-level abstraction and incorporation of data details into broader themes (Whittemore & Knafl, 2005). Conflicting data were addressed through vote counting in an effort to categorize and analyze conflicting results (Whittemore & Knafl, 2005).

Results

Search results from the four databases resulted in 7,391 articles, 1,177 of which were duplicate articles and were removed. The remaining 6,214 articles were screened by title and abstract and resulted in 78 articles eligible for full-text screening. Applying the inclusion and exclusion criteria resulted in 13 articles for inclusion in this review. A flowchart of the search and screening process is available in Figure 1.

Figure 2 depicts the relationship and categorization of the included articles and thematic findings. Table 2 presents the characteristics and major findings for each article. Table 3

summarizes the critical appraisal of each included quantitative article, whereas Table 4 summarizes the critical appraisal of each included qualitative article. In total, the 13 included articles are based on 11 distinct studies. Study methodologies and designs varied across the included 13 articles. Of the articles included in this review, eight were cross-sectional (Hurley et al., 2018; Stovall et al., 2021; Foli, Zhang, et al., 2021; Collins et al., 1999; Trinkoff & Storr, 1998a; Jordan et al., 2016; Trinkoff et al., 2022; Trinkoff & Storr, 1998b), three were qualitative (Witkoski Stimpfel et al., 2020; Davidson et al., 2021; Foli, Forster, et al., 2021), one was a cohort study (Choflet et al., 2021), and one used a mixed-methods approach (Foli et al., 2020) (Table 2). In the 10 quantitative studies (Table 3), alcohol use was measured using 7 different tools and definitions: CDC guidelines, the Alcohol Use Disorders Identification Test—Consumption (AUDIT-C), Drug Abuse Screening Tool (DAST), the World Health Organization Alcohol Smoking Substance Involvement Screening Test (WHO ASSIST), and Likert scales measuring frequency of alcohol use (e.g., more than five drinks on one occasion, more than three drinks on one occasion).

The AUDIT-C tool, which was used in two studies (Foli, Zhang, et al., 2021; Stovall et al., 2021), has higher sensitivity and specificity than other self-report measures for alcohol use with good test-retest and internal consistency (Cronbach's $\alpha = 0.96–0.97$) (Reinert & Allen, 2002). The construct validity of the WHO ASSIST, used by two studies (Foli et al., 2020; Foli, Zhang, et al, 2021), has been established for identifying psychoactive substance use in individuals who use substances at varying levels (Humeniuk et al., 2008). The single-item, dichotomous measures of more than five drinks on one occasion aligns with the definition of binge drinking by the National Institute on Alcohol Abuse and Alcoholism (NIAAA; n.d.) and was used by three studies (Jordan et al., 2016; Trinkoff & Storr, 1998a; Trinkoff & Storr, 1998b). It was not possible to assess the validity of the Likert scales for frequency or the unspecified questions based on CDC guidelines. Notably, CDC guidelines state that binge drinking corresponds to five or more drinks on a single occasion for men and four or more drinks on a single occasion for women (CDC, 2022). Given that approximately 91% of nurses in the United States identify as women, the four-drink threshold may be a better point of measurement (CDC, 2022).

Participant questionnaires were used in all cross-sectional studies (Hurley et al., 2018; Stovall et al., 2021; Foli, Zhang, et al., 2021; Collins et al., 1999; Trinkoff & Storr, 1998a; Jordan et al., 2016; Trinkoff et al., 2022; Trinkoff & Storr, 1998b) and the mixed-methods study (Foli et al., 2020). The cohort study used secondary data analysis from a national database. Of the studies that used or included qualitative methods (Table 4), two used open-ended questionnaires (Foli et al., 2020; Foli, Forster, et al., 2021), one used online discussion boards (Witkoski Stimpfel et al., 2020), and one used secondary analysis of narratives from a national database of deaths by suicide (Davidson et al., 2021). Study aims focused on various aspects of the psychosocial experiences of nurses. Ten articles had primary aims that sought to examine the circumstances that lead nurses to use substances (Witkoski Stimpfel et al., 2020; Hurley et al., 2018; Foli, Zhang et al., 2021, Forster, et al., 2021; Stovall et al., 2021; Collins et al., 1999; Trinkoff & Storr, 1998a; Foli et al., 2020; Trinkoff et al., 2022; Trinkoff & Storr, 1998b), two articles focused on the association of alcohol and substance use in nurse suicide (Choflet et al., 2021; Davidson et al., 2021), and one article aimed to assess nurse stress and coping techniques (Jordan et al., 2016).

Analysis and synthesis of the 13 included articles in this integrative review showed four overarching themes related to factors associated with alcohol use among nurses: (1) occupational stress and trauma, (2) workplace characteristics, (3) mental health implications, and (4) preventive factors.

Occupational Stress and Trauma

Four studies found that nurses use alcohol as a coping mechanism for occupational stress and trauma (Witkoski Stimpfel et al., 2020; Foli, Forster, et al., 2021; Jordan et al., 2016; Foli et al., 2020). Although data were limited on the quantity or frequency of alcohol use as a coping mechanism for work, all four studies found that nurses often turn to alcohol in response to workplace stress. In a qualitative study of early career nurses, participants reported using moderate amounts of alcohol to cope with work stress and promote sleep or relaxation after work (Witkoski Stimpfel et al., 2020). Nurses who had high stress levels and poor coping skills were more likely to engage in binge drinking, defined as having more than five drinks in one occasion (Jordan et al., 2016). Foli, Forster, et al. (2021) examined coping mechanisms nurses used throughout the COVID-19 pandemic and found that nurses reported using alcohol to cope with the stress of working under pandemic conditions. While some nurses reported fear of developing dependence on alcohol, nurses generally reported the professional normalization of substance use, including alcohol, to manage workplace stress and trauma (Foli, Forster, et al., 2021).

Interpersonal sources of workplace stress and trauma were not considered in most of the included articles. Lateral violence was only considered in one study and showed a positive correlation with alcohol use among nurses (Foli, Zhang, et al., 2021). Future research that examines the relationship between interpersonal sources of workplace stress and alcohol use is required to draw conclusions regarding their effect on alcohol use among nurses.

Workplace Characteristics

Six of the included articles examined the association between structural workplace characteristics and alcohol use among nurses (Hurley et al., 2018; Foli, Zhang, et al., 2021; Collins et al., 1999; Trinkoff & Storr, 1998a; Trinkoff et al., 2022; Trinkoff & Storr, 1998b). Foli, Zhang, et al. (2021) found that holding any current position as a nurse was statistically significant for alcohol use. Additionally, the data from these 6 articles revealed three additional subthemes related to alcohol use among nurses: work setting (i.e., hospital, outpatient clinical, and/or long-term care facility), work role (i.e., type of unit, role, and/or position), and shift characteristics (i.e., shift length and/or schedule structure).

Work Setting—The included articles provided conflicting results regarding the work setting that most affected alcohol use among nurses. In a cross-sectional study by Trinkoff et al. (2022), among a national sample of 1,170 nurses, alcohol use was highest (42.9%) among nurses who worked in nursing homes and/or assisted-living settings. In a cross-sectional survey of 1,951 nurses in Western New York, however, hospital nurses reported using alcohol at greater rates than nurses working in non-hospital settings (Collins et al., 1999). In that study, 13% of nurses reported drunkenness in the past month, suggesting excessive intake of alcohol. Furthermore, the nurses who reported drunkenness most frequently

worked in a hospital setting (Collins et al., 1999). The nine remaining quantitative studies did not examine the relationship between type of work setting and alcohol use, either because this was not part of the research design or because the study did not include a sample of nurses working in multiple settings.

Work Role—Leadership roles (e.g., working as a charge nurse or nurse manager, working in nursing administration) also increased the odds of alcohol use among nurses (Trinkoff et al., 2022; Trinkoff & Storr, 1998a). Although Hurley et al. (2018) found that working in nursing academia increased the risk of alcohol use, none of the remaining articles examined the role of precepting, nursing education, or training responsibilities on consumption of alcohol among nurses. Aligned with the findings that greater workplace responsibility is associated with greater likelihood of alcohol use, registered nurses were more likely to consume alcohol during their lifetime than licensed practical nurses (Collins et al., 1999).

Schedule Characteristics—Across the articles, shift length and type influenced the likelihood of nurses consuming alcohol. For example, nurses working shifts longer than 8 hours and rotating day and night shifts were 50% more likely to drink five or more alcoholic drinks on one occasion in the past year (Trinkoff & Storr, 1998b). Any nightshift work also increased the likelihood of alcohol use (Trinkoff & Storr, 1998b). Related findings in qualitative research showed that nurses reported using alcohol as a way of winding down for sleep after their shifts (Witkoski Stimpfel et al., 2020; Foli, Zhang, et al., 2021). Further research is required to determine the specific characteristics regarding longer shifts and night shifts that lead to increased alcohol use among nurses.

Mental Health Implications

Five studies directly examined the association of nurse mental health and alcohol use (Trinkoff & Storr, 1998b; Foli, Zhang, et al., 2021; Foli et al., 2020; Choflet et al., 2021; Davidson et al., 2021). These studies suggest that alcohol use among nurses can be an antecedent of mental health problems, likely used as a form of self-medication that may lead to addiction and exacerbate mental illness. Three subthemes emerged from the included articles related to mental health and alcohol use among nurses: (1) anxiety and depression, (2) trauma, and (3) suicide.

Anxiety and Depression—Both the Generalized Anxiety Disorder-7 (GAD-7) and the Patient Health Questionnaire-9 (PHQ-9) were positively associated with alcohol use in a cross-sectional study of 1,478 nurses in Indiana (Foli, Zhang, et al., 2021). In qualitative research, nurses conveyed that alcohol was sometimes seen as a solution for feelings of anxiety and depression among nurses with poor mental health (Foli, Forster, et al., 2021).

Trauma—Two articles examined the role of personal stress and trauma in relation to alcohol use among nurses (Trinkoff & Storr, 1998b; Foli, Zhang, et al., 2021). In a multivariate regression analysis, Foli, Zhang, et al. (2021) found that the Adverse Childhood Experiences inventory, which measures traumatic childhood experiences, was positively associated with alcohol use among nurses. In the same study, the Life Events Checklist, which measures potentially traumatic events in an individual's lifetime, was also positively

associated with alcohol use among nurses (Foli, Zhang, et al., 2021). In qualitative studies, research participants conveyed they believe that dealing with death and dying can cause posttraumatic stress disorder in nurses and that nurses turn to drugs and alcohol to cope with the residual impact of trauma (Foli et al., 2020). Nurses also conveyed that their mental health is suffering and that they have turned to drugs and alcohol as a result of working during the COVID-19 pandemic (Foli, Forster, et al., 2021).

Suicide—Two studies explored the role of substance use among nurses who died by suicide (Choflet et al., 2021, Davidson et al., 2021). Nurses were more likely to die by suicide if they were under investigation for substance use problems at work (Davidson et al., 2021). Additionally, nurses who died by suicide were more likely than a cohort of non-nurses who died by suicide to test positive for alcohol at the time of their death (Choflet et al., 2021). Thirty-eight percent of nurses who died by suicide had a prior known alcohol problem (Davidson et al., 2021).

Preventive Factors

In addition to examining risk factors for alcohol use, the literature included in this integrative review also held information regarding potential preventive factors to alcohol use among nurses. Both religiosity, which is defined as a strong religious belief or faith, and resilience were associated with decreased alcohol use among nurses (Foli, Zhang, et al., 2021). Perceived organizational support also decreased the risk of alcohol use among nurses (Foli, Zhang, et al., 2021). Low levels of stress and good coping skills decreased the likelihood of alcohol use in a pilot study investigating nurses and coping mechanisms for stress (Jordan et al., 2016). Perfectionism traits, specifically related to organization and order, were also shown to have some protective benefits against alcohol use among nurses (Stovall et al., 2021). Most of the 13 included articles did not directly examine potential preventive factors against alcohol use.

Discussion

This integrative review explores the psychosocial factors associated with alcohol use among nurses described in the current literature. The literature clearly suggests that nurses use alcohol to cope with occupational stress and trauma. This finding is supported by recent research showing that the general public increased alcohol use during the pandemic to cope with the stress of COVID-19 (Pollard et al., 2020). For the majority of adults who drink alcohol in accordance with CDC guidelines, alcohol consumption can have a positive effect on one’s mood and relationships and create minimal problems. However, alcohol can become a problem when stress is chronic and individuals turn to alcohol as a coping mechanism habitually. This literature review supports the conclusion of the NIAAA that long-term drinking to cope with chronic stress can lead to physical and psychological problems, including alcohol use disorder (NIAAA, 2012).

The association of mental illness with alcohol use—specifically trauma, anxiety, depression, and suicide—emerged as themes from the literature included in this review. These findings are supported by the psychiatric literature, which accepts that alcohol use can coexist with, contribute to, or result from mental illness (Shivani et al., 2002). For nurses who identify

as women, nurses have a rate of suicide 58% higher than that of the general population; for nurses who identify as men, the rate is 41% higher (Davis et al., 2021). Alcohol use at time of death and being under investigation for drug- and/or alcohol-related problems at work were associated with death by suicide among nurses (Choflet et al., 2021; Davidson et al., 2021). It is clear from the mental health findings of this review that potential consequences of alcohol use among nurses as a coping mechanism are high and potentially deadly.

Preventive factors to alcohol use revealed in this integrative review include religiosity, resilience, and organizational support. The findings of religiosity and resilience align with alcohol use recovery literature, which shows that finding spiritual meaning and tools of resilient growth and transformation are key in achieving recovery from problematic alcohol use (Matthias-Anderson & Yurkovich, 2016). Congruent with the findings of this integrative review, having high levels of faith and resilience at baseline seemed to be protective against alcohol use generally among nurses. The findings in this review also show that employers have an important role in creating work environments that promote employee health and wellness. This includes fostering safe schedules, honoring work breaks, and limiting extended, late, and rotating shifts where possible to promote nurse well-being.

Regulatory Implications

The results of this review highlight opportunities for regulatory interventions. One key finding of the review demonstrates that nurse schedule characteristics and work hours contributed to the likelihood of alcohol use among nurses. Industries such as aviation (Code of Federal Regulations, 2022), trucking (Federal Motor Carrier Administration, 2021), and nuclear power (U.S. Nuclear Regulatory Commission, 2017) have seen safety improvements due to regulatory practices that limit work hours and promote safe scheduling (Witkoski Stimpfel et al., 2022). In the healthcare industry, residency programs for physicians have also adopted work-hour restrictions through the Accreditation Council for Graduate Medical Education (2021). There are no similar regulations restricting work hours within the nursing profession in the United States (Witkoski Stimpfel et al., 2022).

Additional regulatory implications of this review are related to alternative-to-discipline (ATD) programs administered by state boards of nursing. In 1982, the ANA recognized the problem of impaired nursing practice and called for the development of state assistance programs to assist nurses in need of drug and/or alcohol use recovery. Today, around 1.5% of nurses in the United States are enrolled in ATD programs nationwide (Smiley et al., 2021). State programs for nurses with substance use disorder vary widely and are typically voluntary options for nurses. ATDs typically require nurses to disclose their dependence and/or impairment and participate in a recovery program in order to maintain their licensure. The findings of the present review provide important context regarding patterns and themes of nurse alcohol use. These findings are important background for state boards of nursing and ATD programs as they look to expand their knowledge related to nurses and alcohol use and will help to ensure that programs designed to help nurses align with the reality of the challenges that nurses face related to alcohol use.

Finally, the findings of this review illustrate the potential high-stakes consequences related to intervening with nurses seeking help for problematic alcohol use. Two articles explored

the topic of nurses who died by suicide (Choflet et al., 2021; Davidson et al., 2021) and found that nurses who died by suicide were thematically under investigation for substance use problems at work (Davidson et al., 2021). The findings of this review highlight the mental health implications of alcohol use among nurses, including death by suicide, which is important for regulatory bodies, employers, and ATD programs as they work with nurses seeking help for problematic drug and/or alcohol use.

Research Implications

More research is needed to explicate the factors associated with alcohol use among nurses and the relationship between burnout, workload, and alcohol use among nurses. These concepts are interrelated with occupational stress and trauma and are crucial for employers striving to build work environments that promote employee well-being. Although they can present feasibility and recruitment challenges, more in-depth qualitative studies utilizing in-depth interviews is also required if we are to gain a robust understanding of nurses, mental health, and alcohol use.

Strengths and Limitations

The literature included in this integrative review presented a range of methods, designs, and strategies to examine nurses and alcohol use. Even given the diversity among the studies, there are elements of congruence and clear themes from the literature. Among the studies that used quantitative methodologies, there is a deficit in studies with advanced and comprehensive high-quality statistical analysis regarding alcohol use among nurses. Furthermore, when statistical analyses were used, three studies reported chi-squared analyses for alcohol use without presenting analyses that accounted for confounders. There were only six studies that reported statistics that accounted for confounders in the data. Additionally, of the quantitative studies, eight were cross-sectional, which makes causative conclusions challenging, particularly related to mental health outcomes. It is difficult to discern from these cross-sectional studies whether mental health problems lead to alcohol use, alcohol use leads to mental health problems, or the two phenomena are intertwined and related multidimensionally. Further research, perhaps qualitative, is needed to provide a robust understanding of the experiences of nurses with mental health problems who use alcohol. Other common methodological weaknesses in the quantitative studies were limited descriptions of study participants and the absence of a robust discussion of the power analysis or how sample size was determined among the 10 quantitative studies. There was also a lack of discussion across the studies regarding how missing data were handled.

Another clear limitation among the selected articles is the variety of measurements of alcohol use. Among the 10 quantitative articles, alcohol use was measured in seven different ways (Table 3). Only four of the seven measures represent validated tools, and some of the widely used dichotomous measures such as drinking more than five drinks on one occasion are inexact, measuring only one point in time rather than assessing for patterns of problematic drinking. Nonresponse bias is also a significant limitation to these studies, as nurses with problem drinking may have been disinclined to participate.

Qualitative data were generally high quality and helpful in illuminating the factors associated with nurse alcohol use, particularly given the broad paucity of literature on this topic. However, none of the three qualitative studies included positionality or bias statements from the authors (Table 4). Additionally, data collection methods were limited to electronic data collection, such as discussion boards, open-ended online surveys, and secondary data for qualitative studies, which somewhat limited the opportunity for probing questions and in-depth follow-up with participants. The methods employed in these studies may have been used to maintain anonymity among participants given the stigmatization of this topic among nurses. Future research using in-person and in-depth interviews may provide a more robust understanding of psychosocial factors associated with alcohol use among nurses.

Limitations of the Present Integrative Review—The main limitation of this review concerns publication bias. In limiting the search to articles in peer-reviewed journals, important findings from unpublished research may have been overlooked. While this review includes 13 articles, it represents only 11 studies conducted by nine distinct primary authors, thus limiting the scope and diversity of perspectives. Additionally, the variety of measurements used to assess alcohol use is a limitation of this study. Future research using validated tools for alcohol use assessment among nurses is needed. This review followed the rigorous methodology of Whittemore and Knafl (2005) to account for these limitations. Future research using consistent, validated tools for alcohol use assessment among nurses is needed.

Conclusion

The four major themes in this integrative literature review of factors related to alcohol use among nurses are (1) occupational stress and trauma, (2) workplace characteristics, (3) mental health implications, and (4) preventive factors. The data clearly show that workplace stress and trauma contribute to alcohol use among nurses and that nurses use alcohol in some cases to cope with the challenging content that comes up in their work. Workplace attributes such as working night shift, rotating shifts, and shift length have a clear association with alcohol use among nurses based on the literature. Alcohol use among nurses is associated with serious mental health problems such as anxiety, depression, and suicide. The data also show some potential preventive factors to alcohol use and alcohol problems among nurses; faith, resilience, and perceived organizational support lessened the likelihood of alcohol use among nurses. These findings suggest that alcohol use among nurses is a unique issue with specific and interrelated phenomena related to the role and identity of nurses. A better understanding of these many factors through future research to develop effective policies and programs will facilitate a mentally, spiritually, and physically healthier and resilient workforce better prepared to take on the rewards and challenges of a career in nursing.

Acknowledgments

This work was supported by the National Institute for Occupational Safety and Health–funded NY/NJ Education and Research Center (T42-OH-008422).

References

Accreditation Council for Graduate Medical Education. (2021). ACGME Common program requirements. Retrieved December 7, 2022, from https://www.acgme.org/globalassets/PFAssets/ProgramRequirements/CPRResidency2021.pdf

American Association of Colleges of Nursing. (2021). The essentials: Competencies for professional nursing education.

American Nurses Association. (n.d.). Healthy nurse, healthy nation. Retrieved May 21, 2022, from https://www.nursingworld.org/practice-policy/hnhn/

Carpenter H (2013, December 11). Learn about the five constructs of the healthy nurse. American Nurse Today. Retrieved May 21, 2022, from https://www.myamericannurse.com/learn-about-the-five-constructs-of-the-healthy-nurse/#:~:text=ANA%20defines%20a%20HealthyNurse%20as,spiritual%2C%20personal%20and%20professional%20wellbeing

Centers for Disease Control and Prevention. (2022, April 19). Alcohol and public health: Frequently asked questions. Retrieved September 13, 2022, from https://www.cdc.gov/alcohol/faqs.htm

Choflet A, Davidson J, Lee KC, Ye G, Barnes A, & Zisook S (2021). A comparative analysis of the substance use and mental health characteristics of nurses who complete suicide. Journal of Clinical Nursing, 30(13–14), 1963–1972. 10.1111/jocn.15749 [PubMed: 33763857]

Clayton M, Rolland M, & Bosanquet J (2015). Alcohol and why we should care for the public's health. Gastrointestinal Nursing, 13(Suppl. 5), S10–S15.

Code of Federal Regulations. (n.d.). Flight time limitations and rest requirements: One or two pilot crews. Code of Federal Regulations. Retrieved December 7, 2022, from https://www.ecfr.gov/current/title-14/chapter-I/subchapter-F/part-91/subpart-K/subject-group-ECFRc17623c0e0be17e/section-91.1059

Collins RL, Gollnisch G, & Morsheimer ET (1999). Substance use among a regional sample of female nurses. Drug and Alcohol Dependence, 55(1–2), 145–155. 10.1016/s0376-8716(98)00193-8 [PubMed: 10402159]

Critical Appraisal Skills Programme. (n.d.-b). Qualitative checklist. Retrieved May 22, 2022, from https://casp-uk.net/images/checklist/documents/CASP-Qualitative-Studies-Checklist/CASP-Qualitative-Checklist-2018_fillable_form.pdf

Davidson JE, Ye G, Parra MC, Choflet A, Lee K, Barnes A, Harkavy-Friedman J, & Zisook S (2021). Job-related problems prior to nurse suicide, 2003–2017: A mixed methods analysis using natural language processing and thematic analysis. Journal of Nursing Regulation, 12(1), 28–39. 10.1016/S2155-8256(21)00017-X

Davis MA, Cher BAY, Friese CR, & Bynum JPW (2021). Association of US nurse and physician occupation with risk of suicide. JAMA Psychiatry, 78(6), 651–658. 10.1001/jamapsychiatry.2021.0154

Federal Motor Carrier Administration. (2021, November 10). Hours of service (HOS). https://www.fmcsa.dot.gov/regulations/hours-of-service

Foli KJ, Forster A, Cheng C, Zhang L, & Chiu Y-C (2021). Voices from the COVID-19 frontline: Nurses' trauma and coping. Journal of Advanced Nursing, 77(9), 3853–3866. 10.1111/jan.14988 [PubMed: 34314068]

Foli KJ, Reddick B, Zhang L, & Krcelich K (2020). Substance use in registered nurses: "I heard about a nurse who...." Journal of the American Psychiatric Nurses Association, 26(1), 65–76. 10.1177/1078390319886369 [PubMed: 31747853]

Foli KJ, & Thompson JR (2019). The influence of psychological trauma in nursing. Sigma Theta Tau International.

Foli KJ, Zhang L, & Reddick B (2021). Predictors of substance use in registered nurses: The role of psychological trauma. Western Journal of Nursing Research, 43(11), 1023–1033. 10.1177/0193945920987123

Humeniuk R, Ali R, Babor TF, Farrell M, Formigoni ML, Jittiwutikarn J, de Lacerda RB, Ling W, Marsden J, Monteiro M, Nhiwatiwa S, Pal H, Poznyak V, & Simon S (2008). Validation of the

alcohol, smoking and substance involvement screening test (ASSIST). Addiction, 103(6), 1039–1047. 10.1111/j.1360-0443.2007.02114.x [PubMed: 18373724]

Hurley S, Edwards J, Cupp J, & Phillips M (2018). Nurses' perceptions of self as role models of health. Western Journal of Nursing Research, 40(8), 1131–1147. 10.1177/0193945917701396 [PubMed: 28395592]

Jordan TR, Khubchandani J, & Wiblishauser M (2016). The impact of perceived stress and coping adequacy on the health of nurses: A pilot investigation. Nursing Research and Practice, 2016, Article 5843256. 10.1155/2016/5843256

Matthias-Anderson D, & Yurkovich E (2016). Work reentry for RNs after substance use disorder treatment: Implications for the nursing profession. Journal of Nursing Regulation, 7(3), 26–32. 10.1016/S2155-8256(16)32318-3

Monroe TB, Kenaga H, Dietrich MS, Carter MA, & Cowan RL (2013). The prevalence of employed nurses identified or enrolled in substance use monitoring programs. Nursing Research, 62(1), 10–15. 10.1097/NNR.0b013e31826ba3ca [PubMed: 22960589]

National Institute of Alcohol Abuse and Alcoholism. (2012). Alcohol alert: The link between stress and alcohol. Alcohol Research: Current Reviews, 34(4).

National Institute of Alcohol Abuse and Alcoholism. (n.d.). Drinking levels defined. Retrieved May 26, 2022, from https://www.niaaa.nih.gov/alcohol-health/overview-alcohol-consumption/moderate-binge-drinking.

Pollard MS, Tucker JS, & Green HD Jr. (2020). Changes in adult alcohol use and consequences during the COVID-19 pandemic in the US. JAMA Network Open, 3(9), e2022942–e2022942. 10.1001/jamanetworkopen.2020.22942 [PubMed: 32990735]

Quick JC., & Tetrick LE. (Eds.). (2014). Handbook of occupational health psychology (2nd ed.). American Psychological Association.

Reinert DF, & Allen JP (2002). The alcohol use disorders identification test (AUDIT): A review of recent research. Alcoholism: Clinical and Experimental Research, 26(2), 272–279. [PubMed: 11964568]

Ross CA, Jakubec SL, Berry NS, & Smye V (2018). "A two glass of wine shift": Dominant discourses and the social organization of nurses' substance use. Global Qualitative Nursing Research, 5, Article 2333393618810655. 10.1177/2333393618810655 [PubMed: 30480040]

Shivani R, Goldsmith RJ, & Anthenelli RM (2002). Alcoholism and psychiatric disorders: Diagnostic challenges. Alcohol Research & Health, 26(2), 90–98.

Smiley RA, Ruttinger C, Oliveira CM, Hudson LR, Allgeyer R, Reneau KA, Silvestre JH, & Alexander M (2021). The 2020 National Nursing Workforce Survey. Journal of Nursing Regulation, 12(1), S1–S96. 10.1016/S2155-8256(21)00027-2

Stovall MC, Firkins J, Hansen L, Dieckmann NF, & Van Ryn M (2021). Personality traits and traumatic outcome symptoms in registered nurses in the aftermath of a patient safety incident. Journal of Patient Safety, 17(8), e1652–e1659. 10.1097/PTS.0000000000000740 [PubMed: 32604193]

Strobbe S, & Crowley M (2017). Substance use among nurses and nursing students: A joint position statement of the Emergency Nurses Association and the International Nurses Society on Addictions. Journal of Addictions Nursing, 28(2), 104–106. [PubMed: 28463852]

Substance Abuse Mental Health Services Administration. (n.d.). Alcohol misuse. Retrieved November 21, 2022, from https://www.samhsa.gov/data/taxonomy/term/91

Thomas K, Nilsson E, Festin K, Henriksson P, Lowén M, Löf M, & Kristenson M (2020). Associations of psychosocial factors with multiple health behaviors: A population-based study of middle-aged men and women. International Journal of Environmental Research and Public Health, 17(4), Article 1239. 10.3390/ijerph17041239 [PubMed: 32075162]

Trinkoff AM, Selby VL, Han K, Baek H, Steele J, Edwin HS, Yoon JM, & Storr CL (2022). The prevalence of substance use and substance use problems in registered nurses: Estimates from the Nurse Worklife and Wellness Study. Journal of Nursing Regulation, 12(4), 35–46. 10.1016/S2155-8256(22)00014-X

Trinkoff AM, & Storr CL (1998a). Substance use among nurses: Differences between specialties. American Journal of Public Health, 88(4), 581–585. 10.2105/ajph.88.4.581 [PubMed: 9550998]

Trinkoff AM, & Storr CL (1998b). Work schedule characteristics and substance use in nurses. American Journal of Industrial Medicine, 34(3), 266–271. 10.1002/(SICI)1097-0274(199809)34:3<266::AID-AJIM9>3.0.CO;2-T [PubMed: 9698996]

U.S. Nuclear Regulatory Commission. (2017, October 2). Nuclear power plant staff working hours. https://www.nrc.gov/about-nrc/radiation/protects-you/hppos/hppos024.html

von Elm E, Altman DG, Egger M, Pocock SJ, Gøtzsche PC, & Vandenbroucke JP (2014). The strengthening the reporting of observational studies in epidemiology (STROBE) statement: Guidelines for reporting observational studies. International Journal of Surgery, 12(12), 1495–1499. 10.1016/j.ijsu.2014.07.013 [PubMed: 25046131]

Witkoski Stimpfel A, Goldsamt L, Liang E, & Costa DK (2022). Work organization factors associated with nurses' stress, sleep, and performance: A pre-pandemic analysis. Journal of Nursing Regulation, 13(3), 4–12. 10.1016/S2155-8256(22)00085-0 [PubMed: 36281346]

Witkoski Stimpfel A, Liang E, & Goldsamt LA (2020). Early career nurse reports of work-related substance use. Journal of Nursing Regulation, 11(1), 29–35. 10.1016/S2155-8256(20)30058-2

White AM, Castle IP, Powell PA, Hingson RW, & Koob GF (2022). Alcohol-related deaths during the COVID-19 pandemic [Letter]. JAMA, 327(17), 1704–1706. 10.1001/jama.2022.4308 [PubMed: 35302593]

Whittemore R, & Knafl K (2005). The integrative review: Updated methodology. Journal of Advanced Nursing, 52(5), 546–553. 10.1111/j.1365-2648.2005.03621.x [PubMed: 16268861]

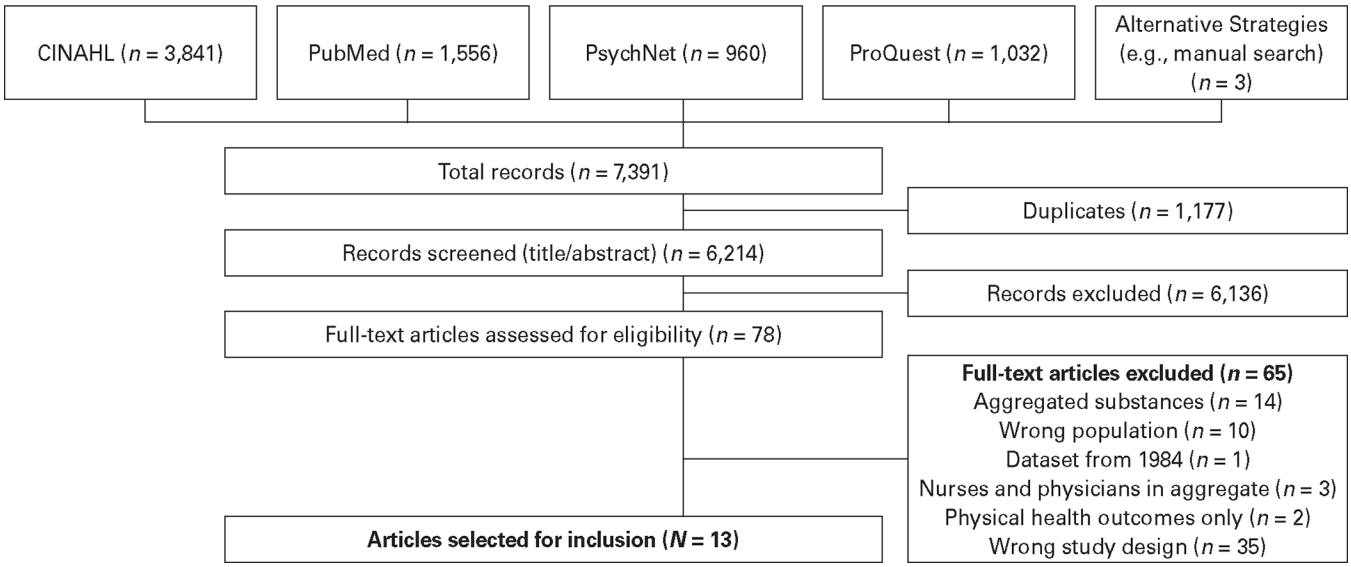

FIGURE 1. Literature Search Structure

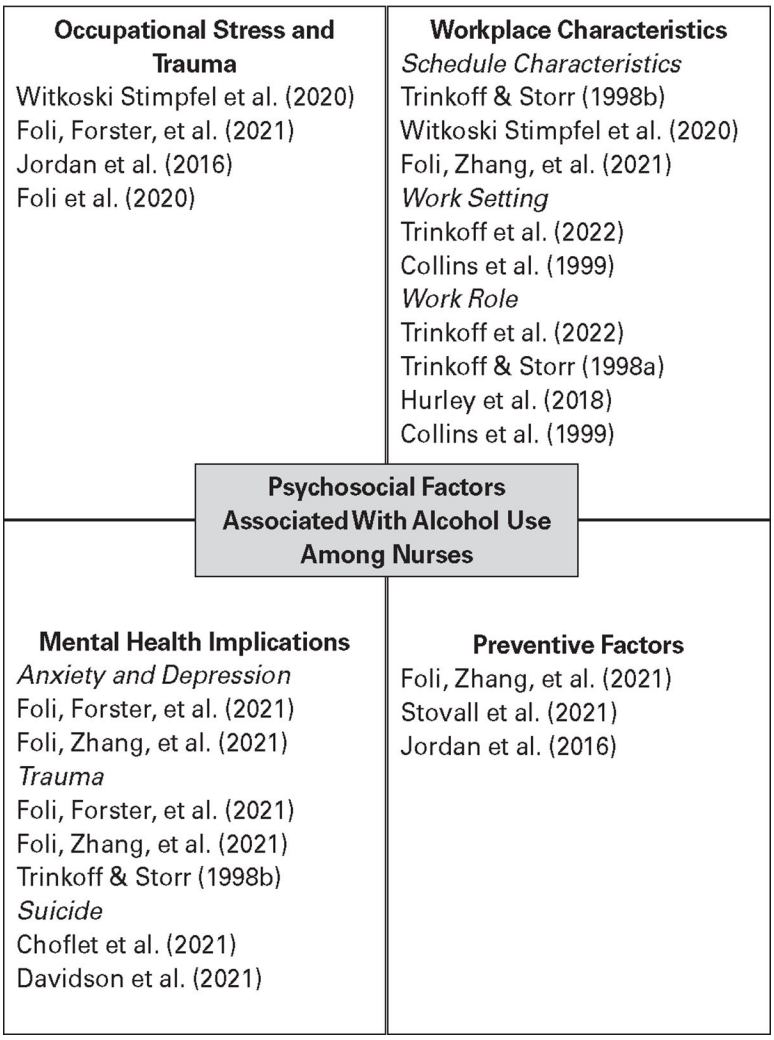

FIGURE 2. Diagram of Thematic Findings

TABLE 1

Literature Search by Database

Database	Search Strategy
CINAHL	(((MH “Nurse Attitudes”) OR (MH “Work Environment”) OR (MH “Personality+”) OR (MH “Health Behavior”) OR (MH “Coping”) OR (MH “Attitude to Health”) OR (MH “Stress, Occupational”) OR (MH “Stress, Psychological”)) OR (MH “Nurses+/PF”)) OR (factor* OR facilitators OR predictor*) AND (MH “Nurses+”) OR nurse* AND ((MH “Substance Abuse+”) OR (MH “Substance Use Rehabilitation Programs+”) OR (MH “Substance Dependence+”) OR (MH “Impairment, Health Professional”) OR (MH “Substance Use Disorders+”) OR (MH “Recovery”) OR addict* OR ((substance OR alcohol) N3 (use OR abuse OR misuse OR dependenc*))) OR ((MH “Alcohol Abstinence”) OR (MH “Alcohol Drinking”) OR (MH “Binge Drinking”) OR (MH “Alcohol Abuse+”) OR (MH “Alcoholism”))
PubMed	(“Nurses”[Mesh]) OR nurse*[TW] AND ((“Health Behavior”[Mesh]) OR (“Stress, Psychological”[Mesh]) OR “Adaptation, Psychological”[Mesh] OR Coping[TW] OR cope*[TW] OR (“Nurse Attitudes”[TW]) OR (“Work Environment”[TW]) OR stress[TW]) AND ((“Substance-Related Disorders”[Mesh]) OR (“Substance Abuse Detection”[Mesh]) OR (“Substance Abuse Treatment Centers”[Mesh]) OR (“Professional Impairment”[Mesh]) OR (“Mental Health Recovery”[Mesh]) OR (“Alcohol Abstinence”[Mesh]) OR (“National Institute on Alcohol Abuse and Alcoholism (U.S.)”[Mesh]) OR (“Alcohol Drinking”[Mesh]) OR (“Alcoholism”[Mesh]) OR alcohol[TW] OR “substance abuse”[TW] OR impairment[TW])
PsychNet	((IndexTermsFilt: (“Nurses”)) OR (Any Field: (nurse*))) AND ((IndexTermsFilt: (“Substance Use Disorder”)) OR (IndexTermsFilt: (“Substance Use Treatment”)) OR (IndexTermsFilt: (“Recovery (Disorders)”)) OR (IndexTermsFilt: (“Alcohol Abuse”)) OR (IndexTermsFilt: (“Alcoholism”)) OR (IndexTermsFilt: (“Alcohol Drinking Attitudes”)) OR (IndexTermsFilt: (“Alcohol Drinking Patterns”)) OR (IndexTermsFilt: (“AlcoholTreatment”)) OR (IndexTermsFilt: (“Binge Drinking”)) OR (IndexTermsFilt: (“Drinking Behavior”)) OR (IndexTermsFilt: (“Social Drinking”)) OR (Any Field: (alcohol*)) OR (Any Field: (“substance abuse”)) OR (Any Field: (drinking))) AND ((IndexTermsFilt: (“Health Behavior”)) OR (IndexTermsFilt: (“Adaptation”)) OR (IndexTermsFilt: (“Coping Behavior”)) OR (IndexTermsFilt: (“Coping Style”)) OR (IndexTermsFilt: (“Stress and Coping Measures”)) OR (IndexTermsFilt: (“Working Conditions”)) OR (Any Field: (“health behavior”)) OR (Any Field: (coping)) OR (Any Field: (work environment)) OR (Any Field: (stress)))
ProQuest Central	NOFT((nurse*) AND (alcohol* OR “substance abuse” OR drinking OR “professional impairment”) AND (“health behavior” OR coping OR stress OR “work environment” OR “working conditions”))

J Nurs Regul. Author manuscript; available in PMC 2024 February 26.

TABLE 2

Article Characteristics: Design, Methods, Sample, Findings

Author et al. (Year) Title Setting	Aim	Methodology Framework Data collection Data Analysis	Sampling Strategy Sample	Major Alcohol-Related Findings	Key Statistics (Quantitative) Key Themes (Qualitative)
Choflet et al. (2021) A comparative analysis of the substance use and mental health characteristics of nurses who complete suicide Setting: United States using CDC NVDRS	"The aim of this study was to describe the substance use and mental health characteristics of nurses who complete suicide compared to the general population who complete suicide (≥20 years of age)." (p. 1964)	Methodology: Retrospective cohort study Framework: Not described Data collection: CDC NVDRS from 2003–2007 Data Analysis: Descriptive statistics, OR, χ^2	Sampling Strategy: Nurses identified from free-text occupation field in the NVDRS Sample: *n* = 2,306 nurses *n* = 185,620 non-nurses	Among those who completed suicide, nurses were more likely than non-nurses to use alcohol (42.1% vs. 13%) and to test positive for substances, including alcohol, at time of death.	Alcohol was not statistically significantly linked with completion of suicide when comparing all nurses to others: • Alcohol tested: OR = 1.17, *p* = .81 • Alcohol result: OR = 0.92, *p* = .19 • Crisis alcohol problem: OR = 1.36, *p* = .26 • Alcohol problem: OR = 0.98, *p* = .81
Witkoski Stimpfel et al. (2020) Early career nurse reports of work-related substance use Setting: Virtual focus groups in an online platform	"The aim of this study was to explore the culture of substance use among nurses in their first 5 years of practice." (p. 29)	Methodology: Qualitative descriptive design Framework: Work, Stress, and Health Model (Quick & Tetrick, 2014) Data collection: Participants assigned to one of two private anonymous discussion boards. Data analysis: Content analysis	Sample Strategy: Participants were recruited from the RN Work Project, a national survey study Sample: *n* = 41 consented *n* = 23 participated in discussion boards *N* = 19 competed demographic questionnaires	Nurses reported moderate alcohol use to cope with shift work and work stress.	34.8% of participants reported using alcohol. Participants reported the use of alcohol to promote sleep or relaxation after a long shift to cope with work stress.
Davidson et al. (2021) Job-related problems prior to nurse suicide, 2003–2017: A mixed methods analysis using natural language processing and thematic analysis Setting: United States using secondary data from NVDRS	"To provide context to job-related problems experienced before nurse death by suicide." (p. 29)	Methodology: Qualitative mixed methods Framework: Interacting Risk and Protective model for understanding suicide Data Collection: NVDRS, which has certified medical examiner/law enforcement reports Data Analysis:	Sampling Strategy: Sample obtained through NVDRS Sample: *N* = 203 nurse deaths by suicide. Included deaths were those with "job problem" in the law enforcement or certified medical examiner report	Nurses who lose a nursing position related to SUD are at risk for suicide. One-third of nurses who died by suicide had alcohol issues prior to their death.	92% (*n* = 187) were out of work or in the process of losing their position as a nurse. 38.4% (*n* = 78) had alcohol issues prior to death by suicide. "Her family stated that she was quite upset by her situation at work and had been drinking more and more over time. Cause of death was alcohol overdose" (p. 34) Common Themes: Peri-job loss; nurse was under investigation for drug and/or alcohol use.

Author et al. (Year) Title Setting	Aim	Methodology Framework Data collection Data Analysis	Sampling Strategy Sample	Major Alcohol-Related Findings	Key Statistics (Quantitative) Key Themes (Qualitative)
		Thematic analysis and natural language processing; latent Dirichlet allocation; descriptive statistics			History of drug and alcohol addiction; counseled about patient complaint. 10.8% of the nurse suicides were in three states that had no ATD program.
Hurley et al. (2018) Nurses' perceptions of self as role models of health Setting: Online survey of nurses in Tennessee	"To determine the relationship between nurses' personal health practices and their perceptions of themselves as role models for health promotion, and assess the relationship of personal and professional characteristics both on perception of self as role model and on the practice of healthy behaviors" (p. 1131)	Methodology: Cross-sectional study Framework: Social cognitive theory Data Collection: Anonymous online questionnaire Data Analysis: Pearson's *r* correlational matrix; Multiple regression; ANOVA	Sampling Strategy: Random sample of all registered nurses in Tennessee (n = 61,829) Sample: N = 804 RNs with active license in Tennessee and valid email address	Caucasian race and working in academia were predictive of alcohol use among nurses. There was a significant relationship between alcohol use and lack of exercise among those working in academic settings.	24.9% of respondents drank alcohol. Two predictor variables that contributed significantly to alcohol use: • Caucasian race (β = 0.87, p < .016) • Academia as area of employment (β = 0.105, p < .004)
Foli, Forster, et al. (2021) Voices from the COVID-19 frontline: Nurses' trauma and coping Setting: Online survey of U.S. nurses working during the COVID-19 pandemic	"To describe the experiences of frontline nurses who are working in critical care areas during the COVID-19 pandemic with a focus on trauma and the use of substances as a coping mechanism" (p. 3853)	Methodology: Qualitative Framework: Middle-range theory of nurses' psychological trauma Data Collection: Online survey with two open-ended questions Data Analysis: Qualitative content analysis	Sampling Strategy: Nurses recruited through American Association of Critical Care Nurses, alumni list of large university Sample: N = 73 nurses who contributed to either or both open-ended questions	Nurses used alcohol and other substances to cope with stress from work during the COVID-19 pandemic.	Turning to substances (alcohol, tobacco, food, drugs) to cope. Normalization of use among colleagues and backing away from alcohol use for fear of health and developing dependency.
Stovall et al. (2021) Personality traits and traumatic outcome symptoms in registered nurses in the aftermath of a patient safety incident Setting: Online survey of nurses in New York and Oregon	"To investigate the relationship between personality traits (perfectionism and neuroticism) and the traumatic outcomes of reexperience, avoidance, and alcohol abuse severity of [RNs] involved with a patient safety incident" (p. 1652)	Methodology: Cross-sectional study Framework: Not described Data Collection: Electronic surveys sent via email Data Analysis: Multiple linear regression	Sampling Strategy: RNs electronically recruited from the NewYork and Oregon BONs Sample: N = 216 nurses who working in a clinical setting within the past 5 years and were involved in a patient safety incident; currently an RN in NewYork or Oregon	Negative linear relationship between perfectionism-order and alcohol abuse severity.	Perfectionism-order (p < .01) had a protecting effect against alcohol severity symptoms (r^2 = 13.56%; f(19, 183)) when controlling for sociodemographic and experience variables, which explained 5% of the variance in the model. Per authors, perfectionist-discrepancy subscales use in isolation is recommended against; they should be taken with caution.

Author et al. (Year) Title Setting	Aim	Methodology Framework Data collection Data Analysis	Sampling Strategy Sample	Major Alcohol-Related Findings	Key Statistics (Quantitative) Key Themes (Qualitative)
Foli, Zhang, et al. (2021) Predictors of substance use in registered nurses: The role of psychological trauma Setting: Online and postal mail survey of nurses in Indiana	"The purpose of this study was to (a) reveal risk scores of SUD; and (b) determine predictors of nurses' risk for tobacco, alcohol, and other SU" (p. 1025)	Methodology: Cross-sectional study Framework: Not described Data Collection: Online multiple single-item questions and validated tools survey Data Analysis: Bivariate analysis (χ^2, Fisher exact test); multivariate regression; one-way ANOVA	Sampling Strategy: Targeted 4,000 Indiana RNs via BON registry via postal mail and email. Sample: *N* = 1,478 RNs in Indiana	Nurses are at moderate risk for alcohol use (11.6%). Depression, anxiety, and GAD level of difficulty item were predictive of risk for alcohol use. Life events and lateral violence were predictive of alcohol use. Current nursing position associated with increased alcohol use. Protective to the risk for alcohol use included religiosity and resilience.	Multivariate regression with predictive variable for alcohol use (r^2 = 0.09): Depression score/ PHQ-9 (p = .000), anxiety/GAD-7 (p = .30), GAD level of difficulty item (p = .001), current nursing position (p = .000); predictive of alcohol use: Life Events Checklist (p = .000). Potential buffers to alcohol use were religiosity (p = .000), resilience (p = .04), perceived organizational support ($p \leq .001$). Bivariate associations: ACE (p = .005), Life Events Checklist ($p \leq .001$), Lateral Violence Question 37 ($p \leq .001$), Lateral Violence Question 38 ($p \leq .001$), Lateral Violence Question 39 ($p \leq .001$), Depression: PHQ-9 ($p \leq .001$), Anxiety: GAD-7 ($p \leq .001$), GAD Level of Difficulty ($p \leq .001$)
Collins et al. (1999) Substance use among a regional sample of female nurses Setting: Western NewYork	"[To assess] the prevalence of licit (e.g. alcohol) and illicit (e.g. cocaine) drug use ... in a regional sample of female nurses" in the context of nursing-related factors and demographic characteristics (p. 145)	Methodology: Cross-sectional study Framework: Not described Data Collection: Postal mail surveys Data Analysis: Descriptive statistics, χ^2	Sampling Strategy: Random sample of nurses from Western NewYork obtained through BON Sample: *N* = 1,951 RNs and LPNs in Western NewYork	Compared to non-hospital colleagues, nurses who worked in hospitals reported using alcohol at greater rates.	Hospital vs. non-hospital nurses: χ^2 (1) = 5.74, $p \leq .02$ Ages 18–44 vs. 54+ past month use of alcohol: χ^2 (4) = 39.39, $p \leq .001$ Almost 13% reported being drunk from alcohol in the past month of use, suggesting excessive intake. Of nurses who reported being drunk, most were married and worked in a hospital setting. 5.7% reported feeling dependent on alcohol; most in this group were married and worked in hospitals. Very few (1.1%) reported blackouts related to alcohol use in the past month.
Trinkoff & Storr (1998a) Substance use among nurses: Differences between specialties Setting: Nationwide survey	To "report on the prevalence of substance use among nurses and expand on previous research by providing substance-specific use rates for a comprehensive array of nursing specialties obtained from a nationwide survey of nurses" (pp. 581–582)	Methodology: Cross-sectional study Framework: Not described Data Collection: Postal mail survey Data Analysis: Descriptive statistics, χ^2, logistic regression	Sampling Strategy: Balanced stratified sampling Sample: *N* = 4,438 RNs in the United States	Total prevalence of binge drinking was 16% in this study. Working in oncology, administration, emergency, or adult critical care increased odds of having engaged in binge drinking by 1.7–2.1.	Binge drinking by specialty: • Oncology: OR = 2.1 (95% CI 1.2–3.6) • Administration: OR = 2.1 (95% CI 1.3–3.6) • Emergency: OR = 1.9 (95% CI 1.2–30) • Adult Critical Care: OR = 1.7 (95% CI 1.2–2.4).

Author et al. (Year) Title Setting	Aim	Methodology Framework Data collection Data Analysis	Sampling Strategy Sample	Major Alcohol-Related Findings	Key Statistics (Quantitative) Key Themes (Qualitative)
Foli et al. (2020) Substance use in registered nurses: "I heard about a nurse who..." Setting: Online survey of nurses in Indiana	"To ascertain an accurate description of nurses' SU in the State of Indiana, we sought to expand our understanding of SU (including alcohol) in RNs through qualitative data collected via online survey, (p. 66)	Methodology: Mixed method: Cross-sectional and descriptive content analysis Framework: Not described Data Collection: Online survey with open-ended responses Data Analysis: Descriptive content analysis, χ^2	Sampling Strategy: Stratified random selection Sample: *N* = 1478 nurses overall *n* = 373 contributed to open-ended responses	Clear narratives that tie nurses' use of alcohol to cope with professional stress.	Four themes: • "Differing Social Network Proximity to SU." Nurses mostly described information about a peer, for example, "I heard about a nurse who..." (p. 69) • "Individual Process—From Vulnerability to Outcomes" (p. 70). Professional and job-related factors created a "perfect storm" (p. 70) of vulnerability: "I used alcohol as a coping mechanism for the trauma, death, and dying I was experiencing at work" (p. 70); "I do, however, truly believe that the experiences bedside nursing staff live on a day to day basis can cause post-traumatic stress disorder (myself being one of them) dependency on alcohol and drugs as a means of coping" (p. 70) • "Bedside, System and Organizational Space and Effects" (p. 71). Ripple effects after nurses are found to have diverted • "No exposure to substance use in the profession" (p. 72).
Jordan et al. (2016) The impact of perceived stress and coping adequacy on the health of nurses: A pilot investigation Setting: Midwestern US hospital	"To assess nurses' health status, health behaviors, self-reported stress levels, coping techniques, perceived coping effectiveness, and situation specific self-efficacy to cope with workplace related stress" (p. 2)	Methodology: Cross-sectional study Framework: Not described Data Collection: Postal mailing of 65-item survey Data Analysis: χ^2 tests, ANOVA, *t* tests	Sampling Strategy: Surveys mailed to all part-time and full-time nurse employees (*n* = 177) Sample: *N* = 120 nurses employed by a hospital in the Midwestern United States	More than 1 in 5 nurses (22%) met criteria for binge drinking. Nurses who had high stress and poor coping were more likely to binge drink (more than 5 drinks on any occasion).	High stress poor coping with 5 or more drinks on any occasion in the last 30 days: 24% (p = .07).
Trinkoff et al. (2022) The prevalence of substance use and substance use problems in registered nurses: Estimates from the Nurse Worklife and Wellness Study Setting: RNs in the United States	"To generate population-based prevalence estimates for SU and related problems, including SUDs, among registered nurses and to examine other personal and work characteristics related to nurse SU" (p. 35)	Methodology: Cross-sectional observational study Framework: Balance theory from human factors and systems engineering Data Collection: Online and mailed questionnaires during November 2020 and March 2021 Data Analysis: Descriptive statistics,	Sampling Strategy: Balanced stratified sampling to select sample representative of the U.S. RN population Sample: *N* = 1,170 RNs and APRNs	Risk for SUD was significantly higher among nurses in certain positions and specialties.	Alcohol use prevalence 30.9%. Alcohol use higher among charge nurses coordinators/nurse managers (32.8%; SE = 2.9) and other administrators (34.4%; SE = 4.7). Alcohol use highest among nurses in nursing homes/assisted living (42.9%; SE = 6.4). Alcohol use higher for administration (45.8%; SE = 7.1), emergency (38.6%; SE = 5.7), critical care (35.5%; SE = 4.5), and total multispecialty nurses (373%; SE = 4.2). 34.3% of nurses demonstrated a low to moderate risk of alcohol use problem.

Author et al. (Year) Title Setting	Aim	Methodology Framework Data collection Data Analysis	Sampling Strategy Sample	Major Alcohol-Related Findings	Key Statistics (Quantitative) Key Themes (Qualitative)
		χ^2 tests (Fisher exact as appropriate), logistic regression, ORs			
Trinkoff & Storr (1998b) Work schedule characteristics and substance use in nurses Setting: US nationwide postal mail survey	To "examine the relationship of a broad array of work schedule characteristics (shift, shift length, overtime, and weekends) to drug and alcohol use in a national sample of nurses" (p. 267)	Methodology: Quantitative cross-sectional observational study Framework: Not described Data Collection: Postal mail surveys Data Analysis: OR	Sampling Strategy: Balanced stratified sampling Sample: *N* = 3,917 nurses employed either full or part time	Nurses working night shifts longer than 8 h had the highest likelihood of alcohol use. Nurses working rotating shifts longer than 8 hours were more likely to use alcohol. Working a few days of overtime in the past month, working shifts longer than 8 h, and working one or two weekends per month increased the likelihood of using alcohol.	Prevalence of drinking 5 or more drinks on one occasion in the past year was 17%. Nurses on rotating shifts were 50% more likely to drink alcohol (OR = 1.54, $p < .05$).

Note. ACE = Adverse Childhood Experience; ANOVA = analysis of variance; APRN = advanced practice registered nurse; ATD = alternative to discipline; BON = board of nursing, CDC = Centers for Disease Control and Prevention; GAD = generalized anxiety disorder; LPN = licensed practical nurse; NVDRS = National Violent Death Reporting System; PHQ-9 = Patient Health Questionnaire-9; RN = registered nurse; SE = standard error; SU = substance use; SUD = substance use disorder.

J Nurs Regul. Author manuscript; available in PMC 2024 February 26.

TABLE 3

Critical Appraisal and Strengths and Weaknesses of Included Quantitative Articles Using the STROBE Tool

Appraisal Item	Choflet et al., 2021	Hurley et al., 2018	Stovall et al., 2021	Foli, Zhang, et al., 2021	Collins et al., 1999	Trinkoff & Storr, 1998a	Foli et al., 2020 [a]	Jordan et al., 2016	Trinkoff et al., 2022	Trinkoff & Storr, 1998b
Design	**Cohort**	**Cross-sectional**	**Cross-sectional**	**Cross-sectional**	**Cross-sectional**	**Cross-sectional**	**Mixed methods**	**Cross-sectional**	**Cross-sectional**	**Cross-sectional**
Introduction										
Background/rationale provided	+	+	+	+	+	+	+	+	+	+
Objectives stated	+	+	+	+	+	+	+	+	+	+
Methods										
Study design presented clearly	+	+	+	+	+	+	+	+	+	+
Participant criteria and selection described	+	+	+	+	+	+	+	+	+	+
Variables well defined	+	-	+	+	-	-	+	-	-	-
Alcohol use measurement	Lab test, history	CDC guidelines	AUDIT-C	WHO ASSIST	Likert	5 + drinks	WHO ASSIST	5 + drinks & Likert	3 + drinks & DAST	5 + drinks
Instrument validity established	-	-	+	+	-	-	+	-	-	-
Data sources described	+	+	+	+	+	+	+	+	+	+
Bias addressed	+	-	+	-	-	+	+	+	+	+
Confounders discussed	-	+	+	+	-	+	-	-	-	+
Missing data discussed	-	-	+	+	+	+	-	-	-	-
Power analysis	-	-	-	-	-	-	-	-	-	-
Results										
Descriptive data	+	+	+	+	+	+	+	+	+	+
Outcome data	+	+	+	+	+	+	+	+	+	+
Discussion										
Clear results	+	+	+	+	+	+	+	-	+	+
Limitations	+	+	+	+	+	+	+	+	+	+

Note. + = yes; - = no; AUDIT-C = Alcohol Use Disorder IdentificationTest—Consumption; DAST = Drug Abuse Screening Test; STROBE = Strengthening the Reporting of Observational Studies in Epidemiology; WHO ASSIST = World Health Organization Alcohol Smoking and Substance Involvement ScreeningTest.

[a]Foli et al. (2020) was a mixed methods study with both quantitative and qualitative measurements.

TABLE 4

Critical Appraisal of Included Qualitative Studies Using the Critical Appraisal Skills Programme Checklist for Qualitative Research

Checklist Item	Witkoski Stimpfel et al., 2020	Davidson et al., 2021	Foli, Forster, et al., 2021	Foli et al., 2020 [a]
Clear statement of purpose?	+	+	+	+
Qualitative methodology appropriate?	+	+	+	+
Research design appropriate?	+	+	+	+
Recruitment strategy appropriate?	+	+	+	-
Data collection aligned?	+	+	+	-
Relationship between participants and research considered?	-	-	-	-
Ethical issues considered?	+	+	+	-
Data analysis rigorous?	+	+	+	-
Clear statement of findings?	+	+	+	+
Is research valuable?	+	+	+	+

Note. + = yes; - = no

[a]Foli et al. (2020) was a mixed methods study with both quantitative and qualitative measurements.