

## ORIGINAL RESEARCH

# The impact of nurses working multiple jobs and drowsy driving accidents: A scoping literature review

Gina B. Rhodes\*, Deanna Ford

University of Phoenix, Phoenix, United States

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## ABSTRACT

**Background and objectives:** Nurses driving while sleep-deprived is a global problem; however, few studies have examined sleep deprivation impacted by nurses working multiple jobs concurrently. Nurses work in high-pressure environments and endure long working hours, which can exacerbate nurses' fatigue. As a result, nurses are susceptible to sleep deficiency and disrupted circadian rhythms. Conceivably, sleep deficiency and disruption in circadian rhythms impact nurses' performance and well-being. The strain of long work hours and insufficient sleep worsens when nurses work multiple jobs. Nevertheless, the adverse effects are not restricted to the healthcare contexts in which nurses work; nurses must also commute back home—this scoping review canvasses existing evidence showing the implications of working multiple jobs for drowsy driving accidents.

**Methods:** In-depth primary data analysis highlights the connection between the two measures (multiple job-holding and drowsy driving accidents). A total of ten studies were identified from CINAHL, PubMed, ScienceDirect, and MEDLINE. These databases contain recent research on nursing trends. The focus was on studies published from 1988 to 2022. This timeframe widens the pool of evidence that can be included in the research using Arksey and O'Malley's five-step process for conducting this scoping review.

**Results:** The review finds ten studies spotlighting the relationship between intensified job demands associated with multiple job-holding and fatigue, which predisposes nurses to drowsy driving and accidents. In-depth primary data analysis highlights the connection between the two measures; multiple job-holding and drowsy driving accidents.

**Conclusions:** Nurses must be optimal performers, yet they work under exceptionally stressful circumstances. The present study suggests that sleep deficiency and disruptions to circadian rhythms have profound negative implications for nurses' well-being beyond health facilities. Sleep interruption is challenging when nurses hold multiple jobs due to intensified job demands. In addition, exhausted nurses working several jobs are prone to drowsy driving, which can lead to accidents. Subsequent research needs to precisely document the implications of multiple job-holding among nurses concerning its impact on drowsy driving and accidents.

**Key Words:** Dual practice, Nurses' dual practice, Nurses' fatigue and drowsy driving accidents, Nurses holding multiple jobs, Nurses moonlighting

## 1. INTRODUCTION AND BACKGROUND

Drowsy driving is a common concern among nurses, and the risk may escalate with the rising popularity of multiple job-holding in the healthcare industry. People require critical nursing services to be available around the clock.<sup>[1-3]</sup> Ac-

cordingly, healthcare facilities rely on shift work and long work hours with negative implications for nurses.<sup>[1,4]</sup> The irregular worker and night shifts disrupt human physiology, which disrupts the circadian rhythms and prevents adequate rest.<sup>[2,3]</sup> As a result, nurses are prone to irregular circadian

\*Correspondence: Gina B. Rhodes; Email: [g5rhodes@email.phoenix.edu](mailto:g5rhodes@email.phoenix.edu); Address: University of Phoenix, Phoenix, United States.

rhythms and sleep deficiency, thereby impacting nurses' ability to work efficiently, stay healthy, and drive safely.<sup>[1,5]</sup> For example, when nurses juggle several jobs, nurses risk developing fatigue. Exhausted nurses pose serious safety concerns for themselves and their patients. Nurse fatigue brings to bear several risks, including patient care mistakes, absences due to sickness, psychological stress, and health decline.<sup>[5-7]</sup> In reality, nurse fatigue affects more than just nurses within healthcare facilities. After leaving work, exhausted nurses experience drowsy driving, which endangers the lives of nurses who are driving lethargic, other drivers, and pedestrians.<sup>[1,3]</sup> According to Westwell et al.,<sup>[8]</sup> drowsy driving contributes to numerous fatalities and injuries annually, at the same time, is preventable. In addition, drowsy driving increases the risk of automobile accidents, which puts nurses and others at serious risk.

There needs to be more literature examining the impact of multiple job-holding and drowsy driving. Evidence is mounting, demonstrating that nurses are prone to drowsy driving because of the fatigue they experience.<sup>[4,9,10]</sup> However, studies are yet to consider how multiple job-holding affects this dynamic. Multiple job-holding is familiar, yet it is a significantly understudied area.<sup>[11-14]</sup> Dual practice is when healthcare providers work simultaneously in private and public institutions.<sup>[12,15,16]</sup> This trend is part of the shift toward multiple job-holding, even though the dual practice differs from multiple job-holding.<sup>[14]</sup> However, rising multiple job-holding is primarily practiced in the healthcare industry, characterized by a persistent nursing crisis. Several factors contribute to job-holding, including staffing shortages, aging personnel, extreme workloads, high employee turnover, and skill gaps.<sup>[17]</sup>

The combined effects of the abovementioned factors increase nurses' propensity to hold multiple jobs and likely expose them to intensified job demands. Heightened job demands associated with multiple job-holding can impact the well-being of healthcare workers, such as high burnout.<sup>[18,19]</sup> Circumstances that exacerbate the strain nurses already experience warrant further study. It is essential to examine whether holding several concurrent jobs in nursing exposes nurses to an additional risk of experiencing burnout and drowsy driving accidents.

## 2. METHOD

This study followed the scoping review methodology. Arksey and O'Malley, as described by Westphal et al.,<sup>[20]</sup> offer a crucial framework for examining existing evidence on the implications of multiple job-holding among nurses for drowsy driving accidents. Conducting a scoping review allows investigators to identify the key concepts underlying

the phenomenon of interest.<sup>[21,22]</sup> In addition, the method allows inquirers to build a nuanced narrative of the research area. These aspects make it suitable for studying multiple job-holding.

### 2.1 Identifying the research question

Research questions guide the discovery and presentation of the literature review. In this case, the focus is on answering the question: "What is the impact of nurses working multiple jobs on drowsy driving accidents?" This query identifies the critical variables that this research aims to examine.

### 2.2 Literature search and strategy

Identifying pertinent evidence entailed a foray into various databases. The key search terms used in the process include "nurses' dual practice," "nurses moonlighting," "effects of nurses holding multiple jobs," "dual practice or moonlighting and fatigue," and "nurses' fatigue and drowsy driving accidents." The scholarly examination included the following databases: CINAHL, PubMed, ScienceDirect, and MEDLINE, on recent research on nursing trends from 1966 to 2022. A considerable timeframe widens the pool of evidence included in the research. Researchers identified a total of 134 studies at this point.

### 2.3 Study selection

The next step entailed screening the identified studies. The researcher eliminated duplicates (42 studies) and then subjected the remaining articles to the inclusion and exclusion criteria. Because there is a need for more research examining multiple job-holding implications, this research used broader inclusion criteria. Studies examining fatigue, multiple job-holding, drowsy driving, and drowsy driving accidents among healthcare workers were included in the study. Researchers excluded grey literature and any work published before 1988 or in any other language besides English. Figure 1 presents the flow diagram of the search strategies and the articles included in each phase. In the screening section, 42 duplicates were removed, reducing 134 total articles to 92. In the included section, 21 duplicates were removed, reducing 31 total articles to 10.

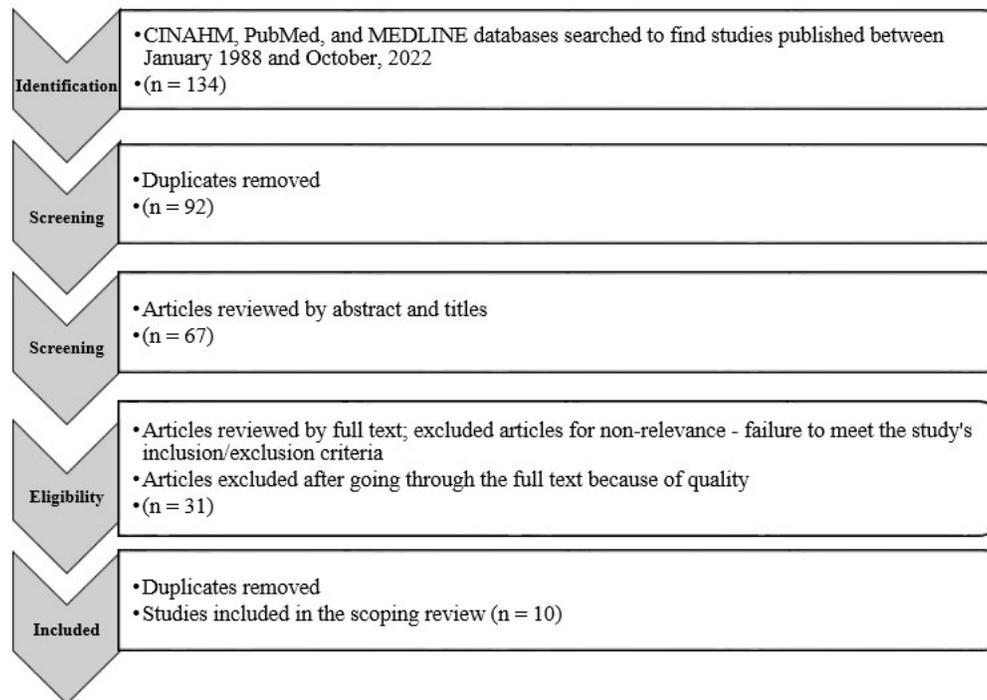
### 2.4 Charting the data

Along with the description of subjects, give the mended size of the sample and the number of individuals meant to be in each condition if different conditions were used—state whether the achieved sample differed in known ways from the target population. Conclusions and interpretations should not go beyond what the sample would warrant.

## 2.5 Collating, summarizing, and reporting the results

The findings of the scoping review were summarized and reported using a narrative approach. The aim was to identify the relationship between multiple job-holding and drowsy

driving accidents. In addition, peer reviews and revisions were conducted to validate the description.



**Figure 1.** PRISMA Flow chart of studies included in the review

## 3. RESULTS

Figure 1 illustrates ten studies spotlighting the relationship between intensified job demands associated with multiple job-holding and fatigue, which predisposes nurses to drowsy driving and accidents. In-depth primary data analysis highlights the connection between the two measures (multiple job-holding and drowsy driving accidents). The research shows fatigue exposes nurses to drowsy driving, which diminishes their road safety. For instance, Smith et al.'s<sup>[27]</sup> work indicates that nurses experience drowsiness after the shift and when they are on a post-work commute.

Scott et al.<sup>[26]</sup> conducted a prospective study that revealed nurses' pervasiveness of drowsy driving. More than 66% of the subjects in the research indicated they experienced drowsy driving, with a significant number suggesting that they had this experience following a shift. The implication is that the need to work long hours through the night makes it extremely dangerous for nurses to drive home.

According to Benzo et al.,<sup>[24]</sup> nurses who slept for longer durations reported experiencing greater alertness than their peers who slept for shorter durations. McElroy et al.'s<sup>[25]</sup> work spotlights the connection between healthcare workers

sharing drowsy driving and car accidents or near misses. McElroy et al.'s findings reveal that 35% of healthcare workers had to change their driving behavior because of drowsy driving. Further research by McElroy et al.'s shows that 19% of research participants indicated they experienced a vehicle accident or near miss because of drowsy driving.

Smith et al.<sup>[27]</sup> take a unique perspective when examining the impact of fatigue on nurses' post-shift commute. Their research entailed using an onboard data recorder to register metrics like acceleration, speed, and GPS location as the participants drove. The recorder registered a total of 853 drives by the 22 participants. Results from Smith et al.'s investigation spotlighted the increased risk of near-crashes happening during post-shift commutes. Research findings also suggest nurses face disrupted and reduced sleep, fatigue, psychological stress, and issues remaining awake while working.<sup>[25]</sup> Smith et al.<sup>[28]</sup> also report that this strain on nurses can lead to extreme drowsiness as nurses drive home, with negative implications for road safety. In Smith et al.'s opinion, the longer nurses remain awake to cope with the difficulties associated with multiple job-holding, the more susceptible nurses are to adverse safety outcomes.

**Table 1.** Summary of reviewed papers

Author and Year	Design	Participant, Setting, and Country	Shift Factor	Nursing Type	Outcomes (measurement)	Results
Smith et al., 2020	Qualitative	38 night-shift nurses, hospital-based, various settings, Texas, USA	12-hour night shifts	Various	Nurses' viewpoints of drowsy driving, countermeasures, and interventions. Semi-structured interviews were analyzed using qualitative data analysis software.	Feelings of drowsiness often happen immediately after the shift or when the nurses are on the post-work commute. Nurses rely on different ineffective countermeasures (music) and effective ones (naps, albeit sparingly).
Scott et al., 2007	Prospective study	895 full-time hospital nurses, hospital-based, various care settings, USA.	Full-time	Registered nurses	Subjects completed logbooks each day for 4 weeks detailing work hours, duration of sleep, drowsiness and sleep episodes experienced at work, and drowsy driving incidents	Most participants (596/895) indicated experiencing at least a single episode of drowsy driving, and 30 stated that they experienced drowsy driving after every shift.
McElroy et al., 2020	A multi-site, descriptive survey study	1563 healthcare workers (77% of the sample were nurses), acute care hospitals, United States	67% of the participants worked the day shift, 49% reported working 12-hour shifts	Healthcare workers (77% of the subjects were nurses)	Social and Domestic Survey, Chronic Fatigue Scale, Circadian Type Inventory, and data showing drowsy driving episodes and automobile accidents or near misses	35% of healthcare workers reported changing their driving behavior because of drowsy driving, and 10% reported experiencing a car accident or near miss because of drowsy driving.
Dorrian et al., 2008	Prospective study	41 full-time nurses, hospital-based, Australia	Full-time	33 registered nurses and 8 enrolled nurses	Respondents answered a demographic questionnaire as well as general health and sleep questionnaires. They also completed logbooks for 28 days. Variables included work hours, sleep duration, drowsiness, stress, errors, and observed mistakes.	Nurses face sleep deficiency, stress, and issues staying awake at work. These actions are associated with a higher risk of committing errors and an increased incidence of extreme drowsiness while commuting, affecting road safety.
Smith et al., 2021	Longitudinal naturalistic driving study	22 nurses, hospital-based, US	Night shift	Various	Focus on near-crashes and driving incidents experienced by night-shift nurses. On-board data recorded monitored speed, acceleration as well as GPS coordinates. Nurses completed daily surveys detailing their sleep, commute, and work patterns.	Results spotlight the elevated risk of nurses experiencing near-crashes while on their post-shift commutes.
Baughman et al., 2022	Prospective study	Current Population Survey. Data derived from all workers comprising 767,601 individuals	All	21,227 nursing and long-term care workers	Focus on multiple job-holding rates among healthcare workers by analyzing the Current Population Survey	Nurses are more likely to hold multiple jobs
Huhtala et al., 2021	Multilevel study	1,024 healthcare staff, hospital-based, United States	All	Healthcare staff	Emphasis on examining the impact of intensified job demands on burnout, work engagement, and patient satisfaction using surveys. 951 patients rated their satisfaction	Intensified job demands adversely affect the well-being of healthcare workers and patient satisfaction levels.
Bhengu, 2001	Non-experimental exploratory study	24 registered nurses, hospital-based, Durban	Day and night shifts among moonlighting nurses	Registered nurses	Focus group discussions using a semi-structured interview guide to understand the positive and negative effects of moonlighting	Findings revealed that moonlighting is common and has certain benefits, but it can be disadvantageous because it causes fatigue.
Russo, 2018	Scoping review	35 studies on nurses' dual practice conducted in different countries	Dual practice	Various	Scoping review examining the nature and consequences of dual practice using the Arksey and O'Malley stages	Few existing studies examine the impact of dual practice, but researchers offer hypotheses and interpretations indicating that it can lead to increased fatigue.
Rispel & Blaauw, 2015	Survey	Nurses, hospital-based, South Africa	Moonlighting	Various	Participants completed questionnaires on the effects of agency nursing and moonlighting.	Researchers found no statistically significant differences between moonlighting nurses and their non-moonlighting peers regarding reported health system incidents.

#### 4. DISCUSSION

Multiple job-holding is a rising phenomenon among nurses and can impact their well-being. Baughman et al.<sup>[23]</sup> found that licensed practical nurses are 35% more likely to hold second jobs than other workers, whereas registered nurses are 32% more prone to having additional jobs. There need to be more studies exploring the impact of multiple job-holding on nurses' well-being. However, existing evidence underscores the adverse effects of intensified job demands, likely when nurses hold more than one job. For example, Huhtala et al.'s<sup>[4]</sup> findings indicated that heightened job demands hurt the well-being of healthcare workers. To be precise, healthcare staff who experience higher time pressure and multitasking report having more exhaustion.<sup>[9]</sup> The implication is that intensified job demands constitute a severe risk for burnout among healthcare personnel.<sup>[2, 8, 10]</sup> It is worth noting that this study focused on the impact of increased workload while nurses were engaged in one hospital, without indicating how multiple job-holding affects this dynamic.

Findings suggest multiple job holding is likely to worsen the exhaustion nurses experience. Bhengu<sup>[24]</sup> conducted a non-experimental exploratory study into moonlighting activity. Moonlighting activity, Bhengu argues, can lead to fatigue, which is a serious concern. In comparison, other research suggests that multiple job-holding may not worsen fatigue. For example, Russo et al.<sup>[14]</sup> conducted a scoping review that did not find evidence of the negative effect of dual practice. However, the analysis by other scholars unveils hypotheses indicating that dual practice among nurses can result in elevated tiredness and reduced alertness. Rispel and Blaauw<sup>[17]</sup> found no statistically significant difference in health system effects among moonlighting versus non-moonlighting nurses.

Additional research is necessary to understand this trend.

#### Limitations

The limitations of this scoping review have a bearing on the quality of studies included in the research. Multiple job-holding is an understudied area. As such, there needs to be more top-tier quality evidence (such as randomized controlled trials) on its impact on drowsy driving accidents among nurses.

#### 5. CONCLUSION

Nurses must be optimal performers, yet they work under exceptionally stressful circumstances. The present study suggests that sleep deficiency and disruptions to circadian rhythms have profound negative implications for nurses' well-being beyond health facilities. Sleep interruption is challenging when nurses hold multiple jobs due to intensified job demands. In addition, exhausted nurses working several jobs are prone to drowsy driving, which can lead to accidents. Subsequent research needs to precisely document the implications of multiple job-holding among nurses concerning its impact on drowsy driving and accidents.

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#### CONFLICTS OF INTEREST DISCLOSURE

The authors declare that there is no conflict of interest.

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