Nursing Fatigue: An Evidence-Based Practice Review for Oncology Nurses

Jordan Ferris, BSN, RN, CMSRN

Nursing fatigue is a current and well-researched topic. Many negative outcomes and consequences exist for patients and nurses that have been linked to nursing fatigue. Medical errors are one such consequence, and these errors have become one of the top three preventable deaths in the United States. Oncology nurses are not immune to fatigue, and the consequences of their fatigue can be much more harmful to patients.

At a Glance
• Medication errors are the third leading cause of preventable death.
• Extended work hours can be associated with nursing fatigue and errors.
• Nursing fatigue can also be associated with nurse injury, such as needlestick injuries.

The Institute of Medicine (IOM) published a landmark report “To Err Is Human: Building a Safer Health System” in 2000 that detailed the medical errors that were happening in the United States and their impact on patient safety (Corrigan, Donaldson, Kohn, McKay, & Pike, 2000). The report estimated that 44,000–98,000 people die each year from preventable medical errors, and more people die in a given year as a result of medical errors than from motor vehicle accidents (43,458), breast cancer (42,297), or AIDS (16,516) (Corrigan et al., 2000). In the three decades since the IOM report was released, hospital errors have climbed rapidly from the eighth leading cause of death to the third leading cause of preventable death (James, 2013). Medication errors can have a variety of outcomes from a simple incident report with no harm done to a patient death. One only needs to do a simple literature search for “medication error” and “death” to see what a moment of inattention can cause. Oncology nurses must be more vigilant than most to avoid potentially life-threatening complications from medication errors. Imagine giving an intrathecal chemotherapy via IV push or giving chemotherapy to the wrong patient. Fatigue and extended work hours can lead to safety concerns for patients with cancer, which is why vigilance is so important in keeping patients and the nurses who care for them safe.

Finding the Evidence
The purpose of this literature review is to synthesize and report on the body of knowledge that surrounds medication errors and nursing and oncology nurses. Using the words nursing, medication error, fatigue, oncology, chemotherapy, and extended work hours, a search was conducted on Google Scholar and ResearchGate, resulting in seven articles from 2005–2015. The results of the review are presented and organized into three categories: (a) work hours and fatigue; (b) fatigue and medication errors; and (c) medication errors, needlestick injuries, and work hours.

Summarizing the Evidence
Work Hours and Fatigue

Multiple studies have focused on nursing work hours and fatigue (Josten, Ng-A Tham, & Thierry, 2003; Stone et al., 2006; Stimpfel, Sloane, & Aiken, 2012). Barker and Nussbaum (2011) aimed at quantifying nurses’ perceived dimensions and reported states of fatigue to investigate the relationships between perceived fatigue and performance, as well as to identify differences in perceived fatigue levels and dimensions across demographic and work environment variables. The Nursing Performance Instrument (NPI) was used to measure changes in concentration, mood, and mental energy, as well as the implications of these on patient monitoring, medication administration, and documentation of tasks (Barker & Nussbaum, 2011). The researchers used four existing fatigue measurement scales, including the Swedish Occupational Fatigue Inventory (SOFI) and the Fatigue-Related Symptoms Questionnaire (F-RSQ). They determined that mental fatigue measures from SOFI (N = 881, X = 2.01, SD = 1.56) and F-RSQ (N = 854, X = 36.81, SD = 26.14) were most strongly correlated with questions in the NPI (p < 0.001), indicating that more than one-third of participating nurses reported working greater than 40 hours per week and that all nurses’ reported levels of mental fatigue were higher than physical fatigue.

For some nurses, working the night shift adds additional dimensions to fatigue and long hours. Scott, Arslanian-Engoren, and Engoren (2014) investigated the association between sleep, fatigue, and decision regret in critical care nurses (N = 605). Decision regret was defined as a negative cognitive emotion that occurs when the actual outcomes and the desired or expected outcome
differ and reflected concerns that the wrong decision had been made... such as an error in clinical judgment or a failure to intercept the errors of others. (Scott et al., 2014, p. 14)

The study found that nurses who worked nights and 12-hour shifts had higher levels of decision regret. It was also noted that nurses with decision regret reported statistically significantly more acute fatigue (p = 0.002) and daytime sleepiness (p < 0.001), significantly less intershift recovery (p < 0.001), and poor sleep quality (p = 0.03) than did the nurses without decision regret. This means that even controlling for personal and work-related characteristics, the more recovery (i.e., sleep) between shifts and the higher quality of that recovery can be associated with less decision regret. Recovery was measured with the Pittsburgh Sleep Quality Index; Sleep Quantity Assessment; and the Occupational Fatigue, Exhaustion, and Recovery Scale. With oncology inpatient populations generally more ill than ever before, it is logical to draw comparisons between these critical care nurses and oncology nurses. To do their jobs, nurses must be able to practice vigilance, be able to react quickly to changes in patient condition, and perform increasingly complex tasks. Being chronically fatigued, both mentally and physically, from extended shifts (particularly extended night shifts) may contribute to creating an unsafe work environment.

Fatigue and Medication Errors

With evidence demonstrating a strong association between fatigue and work hours, fatigue may also affect medication administration. This is particularly important because many patients die annually in the United States from medication errors (Corrigan et al., 2000). Scott, Rogers, Hwang, and Zhang (2006) conducted a study of nurses (N = 502) to determine how work hours affected vigilance and patient safety. The researchers found that nurses reported working longer than originally scheduled 86% of the time (5,201 shifts). In this study, 27% of the nurses reported making at least one “error,” and 38% reported making at least one “near error” during the study period of 28 days. In that study, the majority of errors and near errors (85%) involved the administration of medication. In addition, the risk for making an error almost doubled when nurses worked 12.5 or more consecutive hours. Coupled with the facts from the IOM report (Corrigan et al., 2000), this study highlights an alarming association. Nurses do not generally choose to make medication errors or to harm their patient; however, many choose to work overtime.

Medication Errors, Needlestick Injuries, and Work Hours

Research suggests that medication errors increase when nurses work extended hours, night shift, or extended hours on night shift (Dorrian et al., 2006; Olds & Clarke, 2010; Stone et al., 2006). Oncology nurses are not immune to shift work or long hours and are just as susceptible to fatigue as other nurses. The difference is that the medications oncology nurses administer and the life-threatening or injurious effects those medications can have (e.g., extravasation) if not given in the right dose, by the right route, and to the right patient. The incidence of needlestick injuries also increases when nurses work extended shifts and hours (Olds & Clarke, 2010; Trinkoff et al., 2011). Ilhan, Durukan, Aras, Turkcuoglu, and Aygun (2006) conducted a study of nurses (N = 449) to determine sharp and needlestick injury incidence, as well as contributing factors. The researchers found that 80% of nurses had experienced at least one needlestick in their professional life, and 68% had experienced a needlestick in the past year. Of note, nurses who worked more than eight hours per day had a statistically significant increase in needlestick injuries within the past year (p < 0.05).

Trinkoff et al. (2011) presented similar research. The researchers examined the association between working conditions and needlestick injury among nurses. After surveying 2,624 actively licensed RNs, they found that total hours worked per day, working other than day shifts, and working 13 or more hours per day were each significantly associated with needlestick injuries (p < 0.001). Although nurses use primarily needleless systems with ports and Luer locks, the chance for self-exposure or exposure to patients still exists. Working overtime and night shifts increases these chances significantly.

Olds and Clarke (2010) studied the relationship between RNs’ extended work duration with adverse events and errors. In a survey of 11,516 RNs, the researchers found that nurses working more than 40 hours per week had an increased likelihood of observing or experiencing occasional or frequent (versus never or rare) adverse events. In particular, these adverse events included wrong medication, incorrect dose administration, and needlestick injuries. In addition, it was found that these adverse events occurred more often during voluntary paid overtime.

Conclusion

The literature reviewed in this evidence-based column suggests that nurse fatigue may lead to errors and injury and that nurse work hours and fatigue are potentially linked. Unfortunately, research about oncology nurses and medication errors is lacking, but one could logically draw conclusions from evidence in other types of nurses. Chemotherapeutic medications are consistently listed on the high-alert medication list because of their narrow therapeutic windows and toxic side effects. Oncology nurses must understand the potential association between extended work hours, fatigue, and poor patient outcomes, including medication errors and needlestick injuries. More research is needed to investigate how long work hours and the care of patients with cancer creates physical and psychological fatigue in oncology nurses. More research is also needed to understand how those variables affect patient safety and the quality of care for patients with cancer.

References


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