



Background

The American Association of Colleges of Nursing reported that the national registered nurse (RN) shortage was greater than 8% in 2008 in the United States (MacKusick & Minick, 2010). The Institute of Medicine (IOM) published a report predicting a 29% shortage by 2020 and attributes it to the increased demand for nurses as the population ages (Institute of Medicine, 2004).

The shortage of nurses in the workforce has led to the use of overtime to meet the healthcare needs of patients. Other industries such as airline, trucking, and railroads have put policies into place to limit the hours employees can work in a week to circumvent fatigue in workers because fatigue contributes to worker errors (Hughes & Rogers, 2004).

Such policies have not been implemented in nursing. The current trend in nursing is working 12-hour shifts (Beyea, 2004; Dickson & Witkoski, 2010). Working long hours and overtime can lead to fatigue, which leads to patient care errors (Bae, 2012). Fatigue leads to decreased alertness, slowed reaction time, impaired communication, reduced motivation, lower productivity, lapses of attention to detail, compromised problem solving, increased risk of injury, and loss of empathy (Aker & Biddle, 2011; Campbell, et al., 2011; Hughes & Rogers, 2004; Garrett, 2008; The Joint Commission, 2011).

This research study examined perceived fatigue among nurses in western North Carolina.



Purpose

The purpose of this study was to measure perceived fatigue specifically among nurses working in western North Carolina. Further, this study compared the differences in perceived fatigue between nurses working in a trauma center and community hospitals.

The study measured differences in perceived fatigue among varying demographic groups within the study. Also measured was the level of fatigue present, acute versus chronic, along with the nurses perceived ability to recover from fatigue between shifts.

Sample

A convenience sampling method from five selected acute care hospitals within western North Carolina was utilized for this study. All registered nurses who provide direct patient care were included in the study. Registered nurses whose primary role is other than direct patient care were excluded from the study.

The hospitals in the study included one regional trauma center and four community/critical access hospitals. The total number of nurses who could potentially participate in the research study was 2,764. There were 634 respondents to the study and a total of 610 study participants. All five hospitals were represented among the participants.

Methods



Two existing survey instruments with proven reliability and validity were combined to create one survey instrument that could capture a more comprehensive depiction of fatigue than use of just one survey instrument may have offered. The survey instrument utilized in this study incorporated the Fatigue Assessment Scale and the Occupational Fatigue Exhaustion Recovery Scale.

The Occupational Fatigue Exhaustion Recovery Scale contains three subscales:
•An acute fatigue subscale
•A chronic fatigue subscale
•An inter-shift recovery subscale.

Permission to use the survey instruments was obtained from each of the developers. After approval from the Institutional Review Board, the survey was distributed through email to registered nurses currently working in the hospitals included in the study. The email contained a link to survey monkey where nurses could complete the survey. It was explained that participation was voluntary and the results would be kept confidential. Email and IP addresses were not tracked. Survey Monkey was utilized to generate a report of participants responses which populated into an excel spreadsheet. All data is de-identified through this process. Nurses were given three weeks to complete the survey. The study did not involve any interventions or manipulation of the variables.

Results

There was a mean score of 23.5 on the Fatigue Assessment Scale indicating an overall presence of fatigue among study participants. A closer look utilizing the Occupational Fatigue Exhaustion Recovery Scale showed the following:

Scale	Mean
Chronic Fatigue Subscale	47.1
Acute Fatigue Subscale	67.2
Inter-shift Recovery Subscale	52.1

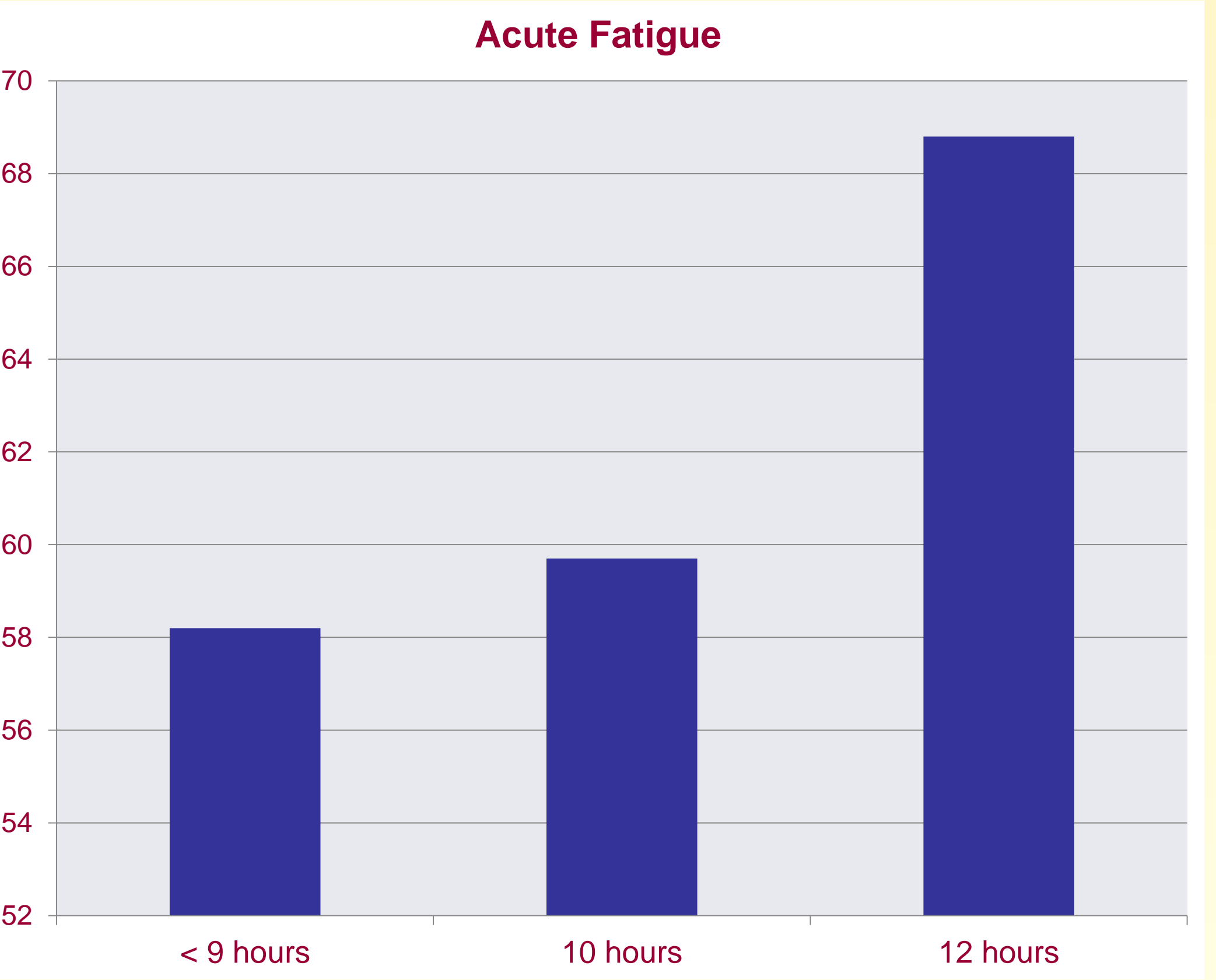
These results indicate study participants as a whole reported a moderate level of chronic fatigue, a high level of acute fatigue, and a moderate level of inter-shift recovery capability.

Major Findings

When comparing nurses working different shift lengths, nurses working a 12 hour shift reported a statistically significant higher level of acute fatigue with a mean score of 68.8, ($p < .001$), than nurses working ≤ 9 hours and nurses working 10 hours.

When comparing day, evening and night shift nurses, nurses working night shift scored statistically significant higher on the Fatigue Assessment Scale with a mean of 24.9, ($p < .001$), than nurses' working day or evening shifts. Night shift nurses also report a statistically significant lower ability to recover between shifts with a mean score of 48.5, ($p < .05$).

Labor and delivery and medical surgical inpatient units reported the highest level of acute fatigue when compared to other departments, ($p < .05$).



Reported fatigue increases with length of shift.

Conclusion

This study adds to the body of evidence that nurses working a 12 hour shift experience more fatigue than those working shorter shifts. These results present an ongoing cause for concern since countless nurses in hospitals work 12 hour shifts. Such a scheduling pattern is incompatible with goals for safe, high quality patient care, therefore the use of 12 hour shifts should be limited. Healthcare leaders must provide healthy work environments to retain experienced nurses and to provide patients with safe experiences.

Implications for Nursing

- Previous research has indicated that nurses working an increased number of hours per week report greater levels of fatigue along with an increase of errors (Aiken et al., 2004).
- Most nurses working in hospitals today work a 12 hour shift which means they are at higher risk of working fatigued.
- Fatigue has been found to be a factor in nurses deciding to leave the profession (MacKusick & Minick, 2010).
- Moreover, previous studies have proven that fatigued nurses suffer more work related injuries (Amelsvoort, Bultmann, Kant, & Swaen, 2003) as well as garner poorer patient outcomes (Gurses, Han, Johantgen, Liang, Storr, & Trinkoff, 2011). Thus, patients along with nurses benefit when nurses are not fatigued while working.

References

Aiken, L. H., Dinges, D. F., Hwang, W.-T., Rogers, A. E., & Scott, L. D. (2004). The working hours of hospital staff nurses and patient safety. *Health Affairs*, 23(4), 202-212. doi:10.1377/hlthaff.23.4.202

Aker, J., & Biddle, C. (2011). The national study of sleep-related behaviors of nurse anesthetists: Personal and professional implications. *AANA Journal*, 79(4), 324-331. Retrieved from <http://www.aana.com/aanajournalonline.aspx>

Bae, S.-H. (2012, March-April). Nursing overtime: Why, how much, and under what working conditions? *Nursing Economics*, 30(2), 60-72.

Beyea, S. C. (2004). Too tired to work safely? *AORN Journal*, 8(3), 559-562.

Campbell, J., McCourt, K., Moore, C., Orr, J., Williams, S., & Wilson, N. (2011, July-August, September). Nurse Fatigue: an NCNA survey. *Tar Heel Nurse*, 12-15.

Dickson, V. V., & Witkoski, A. (2010). Hospital staff nurses' work hours, meal periods, and rest breaks. *AAOHN Journal*, 58(11), 489-497.

Garrett, C. (2008, June). The effect of nurse staffing patterns on medical errors and nurse burnout. *AORN*, 87(6), 1191-1204.

Gurses, A. P., Han, K., Johantgen, M., Liang, Y., Storr, C. L., & Trinkoff, A. M. (2011). Nurses' work schedule characteristics, nurse staffing, and patient mortality. *Nursing Research*, 60(1), 1-8. doi:10.1097/NNR.0b013e3181ff15dH

Hughes, R. G., & Rogers, A. E. (2004). First, do no harm. *American Journal of Nursing*, 104(3), 36-38.

Hughes, R. G., & Rogers, A. E. (2004). First, do no harm. *American Journal of Nursing*, 104(3), 36-38. Retrieved from <http://www.nursingcenter.com>

Institute of Medicine, I. (2004). Keeping patients safe: transforming the work environment of nurses. (A. Page, Ed.) Washington DC: The National Academies Press.

MacKusick, C. I., & Minick, P. (2010). Why are nurses leaving? Findings from an initial qualitative study on nursing attrition. *MEDSURG Nursing*, 19(6), 335-340.

The Joint Commission. (2011, December). Health care worker fatigue and patient safety. *Sentinel Event Alert*(48). Retrieved from <http://www.jointcommission.org>