INTRODUCTION

Over the past decade, nurses working in hospital settings have experienced numerous changes in patient care staffing plans and patterns. Questions have arisen about the impact, if any, these changes have on quality patient care. Initiatives to address and answer these questions about quality care have propelled the importance of including nursing-sensitive outcomes as indicators of health care quality.

LITERATURE REVIEW

**Staffing and Patient Outcomes**

Studies examining the relationships between staffing skill mix, nursing hours, and patients’ outcomes reveal significant relationships and, at times, controversial findings. Some studies have reported a relationship between higher staffing levels and lower mortality rates, 2,7 while one study did not support these findings.8 Higher percent of RN hours has been linked with higher patient satisfaction, 9,10 lower perceptions of pain by patients, lower medication occurrences, lower rates of hospital-acquired pressure ulcers, and lower patient fall rates. Units with higher patient-to-nurse ratios have been linked to increased length of stay.2,8,13

Several studies indicate relationships between nurse staffing levels and patient complications.10,13,16 Higher nursing hours per patient day have been associated with fewer urinary tract infections.10,13,16 Lower nurse staffing levels have been associated with higher levels of pneumonia after surgery and an increased risk for readmission after surgery.13,15,16

Dang et al.14 found that decreased nurse staffing levels were significantly associated with an increased risk for respiratory and cardiac complications. Studies addressing the effects of agency staffing on patient outcomes are scarce in nursing literature.

**Agency Staff and Patient Outcomes**

Newhouse et al.17 examined the relationship between agency staff and patient outcomes and found that complications and length of stay were not significantly associated with the percentage of RN agency use in an operating room setting. A surprise finding in the study was that the estimated odds of death decreased significantly per 10% increase in RN agency use. The authors explained this finding by stating that agency nurses usually do not take call, are not assigned to complex cases, and have specific expertise in perioperative nursing practice.

No studies were found that addressed the effects of agency staff on patient outcomes in acute care settings. Therefore, further research is indicated to evaluate the impact of agency staff on patient outcomes in acute care nursing units.

METHODS

**Design:** Retrospective, descriptive, correlational

**Sample & Setting:**
- 5 hospital integrated healthcare system
- 28 acute care nursing units (critical care, telemetry & medical-surgical)

**Data Collection:**
- Calendar year 2004 and 2005 data
- Independent Variables: Nursing hours per patient day, Staff skill mix, Percent agency staff, RN certification, RN education level
- Dependent Variables: Falls, Injurious falls, Hospital-acquired pressure ulcers, Code occurrences, Restraint use, Medication error occurrences

DATA ANALYSIS

**Descriptive statistics:** frequencies, percentages, means, and standard deviations

**Bivariate correlations:** to determine significant relationships between the independent variables and dependent variables

**Multiple linear regressions:** to determine the predictive relationships among hours of nursing care, staff skill mix, agency use, RN education level, RN certification, and patient outcomes (code occurrences, restraint use, falls, injurious falls, hospital-acquired pressure ulcers, and medication error occurrences) in acute care nursing units

A p value of < .05 will be considered statistically significant.

RESEARCH QUESTIONS

1. What are the relationships between use of agency staff and patient outcomes (code occurrences, restraint use, falls, injurious falls, hospital-acquired pressure ulcers, and medication error occurrences) in acute care nursing units?

2. What are the relationships among hours of nursing care, staff skill mix, RN education level, RN certification, and patient outcomes (code occurrences, restraint use, falls, injurious falls, hospital-acquired pressure ulcers, and medication error occurrences) in acute care nursing units?

3. Are hours of nursing care, staff skill mix, agency use, RN education level, and RN certification predictors of patient outcomes (code occurrences, restraint use, falls, injurious falls, hospital-acquired pressure ulcers, and medication error occurrences) in acute care nursing units?