



# Does context matter? The influence of unit size and work complexity on nurses' participation in decision making in medical surgical nursing units

Cynthia Thornton Bacon PhD, RN

North Carolina Agricultural & Technical State University School of Nursing

## Introduction

Increased unit size increases work complexity for nurses (Ebright, 2010). When work complexity increases, participation in decision making may maximize nurses' flexibility, discretion and control.

This study investigated the relationships among the nursing unit's **context** (unit size and work complexity) and **structure** (nurses' participation in decision making). The study was guided by Structural Contingency Theory (SCT) which suggests that achieving effectiveness in hospitals depends on identification of nursing unit structures that are best suited to the technological contexts in which nurses operate.

## Methods

The study used a descriptive, cross-sectional design.

Data on unit size, work complexity and nurses' participation in decision making were collected from nurses via questionnaire from 286 nursing units in 146 hospitals across the United States over a 6-month period. The data were collected as part of a larger study, Outcomes Research in Nursing Administration – ORNA-II, Mark, B.A. (2001). A Model of Patient and Nursing Administration Outcomes: National Institute of Nursing Research, R01NR03149.

Sampling Framework			
	Eligible	Actual	Sample
		Sample	(Response rate)
Hospital	160	→	146
Nursing Unit	320	→	286
Nurse Survey 1	6,562	→	4,954 (75%)
Nurse Survey 2	6,389	→	3,718 (58%)

Data were analyzed at the unit level utilizing mixed effects linear regression with a random effect to address the fact that the data were clustered in nursing units within hospitals.

## Results

**Hypothesis 1.** As unit size (number of beds) increased, work complexity would increase on nursing units. Work complexity was significantly and positively associated with the number of beds ( $\beta=0.07$ ,  $p=0.0004$ ). Hypothesis 1 was supported.

**Hypothesis 1A.** As unit size (number of nurses) increased, work complexity would increase on nursing units. Work complexity was positively associated with the number of nurses, however, the parameter estimate was not statistically significant ( $\beta=0.007$ ,  $p=0.6285$ ). Hypothesis 1A was not supported.

**Hypothesis 2.** As work complexity increased on the nursing units, nurses' participation in decision making would increase. Work complexity was significantly associated with nurses' participation in decision making but not in the expected direction. As work complexity increased on the nursing units, nurses' participation in decision making decreased. The relationship was significant ( $\beta=-0.1487$ ,  $p<.0001$ ) but opposite from that which was hypothesized. Hypothesis 2 was not supported.

### Hypothesis 1

#### Mixed Model for Work Complexity

Variable	Estimate	Standard Error
Intercept	26.76	1.33
Number of beds	0.07***	0.01
<b>Control Variables</b>		
Case Mix Index	-0.66	0.71
RN Unit Tenure	-0.02**	0.007
RN Experience	0.004	0.005
RN Education Preparation	-0.71	1.09

\* $p<0.05$ ; \*\* $p<0.01$ ; \*\*\* $p<0.001$

### Hypothesis 1A

#### Mixed Model for Work Complexity

Variable	Estimate	Standard Error
Intercept	28.72	1.28
Number of nurses	0.007	0.01
<b>Control Variables</b>		
Case Mix Index	-0.78	0.75
RN Unit Tenure	-0.02**	0.008
RN Experience	0.007	0.005
RN Education Preparation	-0.52	1.14

\* $p<0.05$ ; \*\* $p<0.01$ ; \*\*\* $p<0.001$

### Hypothesis 2

#### Mixed Model for Nurses' Participation in Decision Making

Variable	Estimate	Standard Error
Intercept	17.69	1.18
Work Complexity	-0.14**	0.03
<b>Control Variables</b>		
Case Mix Index	0.84*	0.41
RN Unit Tenure	0.01**	0.004
RN Experience	-0.003	0.003
RN Education Preparation	0.58	0.63

\* $p<0.05$ ; \*\* $p<0.01$ ; \*\*\* $p<0.001$

## Practice Implications

This study supports findings from previous research which found that increased numbers of patients on the nursing unit lead to increased work complexity for nurses (Ebright, 2010). This study provides support for further investigation into the effects of work complexity on nurses' capacities to process the information needed to effectively carry out the transformation process in which their patients become discharged persons (Alexander & Bauerschmidt, 1987). When work complexity increased nurses' participation in decision making did not increase suggesting that there may be barriers that negatively impact this transformation process. If nurses have limited input into decisions that are made about their patients, the information available to the patient care team will be incomplete and may result in decisions that do not fully meet patients' needs.

## Conclusions

This research highlights the important effects of nursing unit context on nurses' work complexity, the effects of which are not often accounted for when determining nurse staffing.

This study also reinforces the importance of nurse leaders' facilitation of work conditions that support nurses' full participation in decisions on nursing units.

## Discussion

More patients can lead to increased work complexity for nurses due to higher numbers of patient transfers and multiple competing patient demands. This increases the requirements for nurses to control and coordinate their care (Ford & Slocum, 1977). When there were more patients on the nursing unit, nurses' perceptions of work complexity increased.

However, the relationship between number of nurses and work complexity was not significant though prior research found that more nurses on the unit increased work complexity because of the increasing challenges in communicating and coordinating the patient care (Smith et al., 1994). However, unit size measures may not all be equally relevant or sensitive in their influence on work complexity. Work complexity may be more sensitive to changes in number of beds/patients than number of nurses.

Also, there may be other factors on units that lessened the effects of the increased number of nurses on work complexity, such as improved team work. When work becomes increasingly complex, nurses may be more willing or apt to pull together as a team. Nurses may alter their communication patterns and routines to communicate more frequently with one another

When work complexity increased on the nursing units, nurses' participation in decision making decreased. As work becomes more complex, nurses may be unable to participate in both formal and informal processes where patient care decisions are made.

## References

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