Title:
Unit Patient Safety Culture: Test of a Model

Debbie Anglade, PhD
School of Nursing and Health Studies, University of Miami, Coral Gables, FL, USA

Session Title:
Enhancing Patient Safety
Slot:
D 10: Sunday, 29 October 2017: 2:45 PM-4:00 PM
Scheduled Time:
3:05 PM

Keywords:
Bioecological Model, Nursing and Patient Safety Culture

References:

Bronfenbrenner, U. (1979). The ecology of human development: Experiments by nature and design. Boston, Massachusetts: Harvard College.

Bronfenbrenner, U. (1994). Ecological models of human development. In International encyclopedia of education, vol. 3, 2nd Ed. Oxford: Elsevier. Reprinted in: Gauvain, M & Cole, M. (Eds.), Readings on the development of children, 2nd Ed. (1993, pp. 37-43). NY: Freeman.

Bronfenbrenner, U. (1999). Environments in developmental perspective: Theoretical and operational models. In S. L. Friedman & T. D. Wachs (Eds.), Measuring environment across the life span: Emerging methods and concepts(pp. 3-28). Washington, DC: American Psychological Association Press.

Bronfenbrenner, U. & Ceci, S. J. (1994). Nature-nurture reconceptualized in developmental perspective: A bioecological model. Psychological Review, 101(4), 568-586.

Bronfenbrenner, U., & Morris, P. A. (2006). The bioecological model of human development. In W. Damon & R. Lerner (Series Eds.) & R. M. Lerner (Vol. Ed.), Handbook of child psychology: Vol 1: Theoretical models of human development (6th ed., pp. 793-828.). New York: Wiley. (Read pp. 793-803.)

Chassin, M. R. & Loeb, J. M. (2013). High-reliability health care: Getting there from here. The Milbank Quarterly, 91 (3), 459–490.

Forrest, L., Miller, D. S. S., & Elman, N. S. (2008). Psychology trainees with competence problems: From individual to ecological conceptualizations. Training and Education in Professional Psychology. 2(4), 183–192.

Groves, P. S. (2013). The relationship between safety culture and patient outcomes: Results from pilot meta- analyses. Western Journal of Nursing Research, 36(1), 66–83.

Tudge, J. R. H., Mokrova, I., Hatfield, B. E., & Karnik, R. B. (2009). Uses and misuses of Bronfenbrenner's bioecological theory of human development. *Journal of Family Theory & Review, 1*, 198–210.

Abstract Summary:
The use of Bronfenbrenner's bioecological model as a framework to evaluate the interrelated relationships between unit patient safety culture and individual nurse's behavior and self-management (compassion fatigue and/or satisfaction) and the impact on nurse-sensitive patient outcomes.
Learning Activity:

LEARNING OBJECTIVES	EXPANDED CONTENT OUTLINE
Identify the five nested context systems of the bioecological model.	Presentation of the five nested systems.
Examine the application of the bioecological model in nursing research.	Presentation of the bioecological model in study.

Abstract Text:

Purpose

Since the 1999 IOM report *To Err Is Human*, there has been engagement to improve health care safety. Although improvements have been made, health care safety is still not demonstrably and measurably safer due to the complexity of the healthcare system and the challenge of creating cultures of safety which requires changes in behaviors. Nursing literature shows a plethora of research on the relationship between safety culture and patient outcomes with overall results demonstrating that better safety culture is related to better outcomes. To date, the interrelated relationship between nursing units' safety culture and compassion fatigue constructs have not been examined in relations to patient outcomes.

Threats to safety are complex and present themselves in many different forms. The relationship between patient safety and outcomes may not be theoretically linear, but can be indirect, or affected by multiple steps or mediators. As an example safety culture may impact adherence to evidence-based practice, which then affects patient safety outcomes, with multiple other factors affecting the relationships. The ecological model operate under the assumption that human behavior is determined by a series of interactions; with the individuals' psychological adjustments dependent on their daily interactions as well as the systems that structure the individual's daily realities. The bioecological model contains five nested level of systems or contexts that are important to the individual's development. The central sphere represents the individual and is surrounded by the five concentric spheres. Over time the individuals' roles, activities, and relations in different settings change due to multiple interconnections between the five nested systems; microsystem, mesosystem, exosystem, macrosystem, and chronosystem.

This study used Bronfenbrenner's bioecological model as a framework to evaluate the interrelated relationships between unit patient safety culture and individual nurse's behavior and self-management (compassion fatigue and/or satisfaction) and the impact on nurse-sensitive patient outcomes.

Methods

The quantitative descriptive correlational design study used primary and secondary data. Primary data on patient safety culture, compassion fatigue, and compassion satisfaction were collected through a convenience sampling of inpatient registered nurses (N = 127), employed at a South Florida teaching hospital who responded to a self-administered anonymous Qualtrics electronic survey delivered by email. Secondary unit level nurse-sensitive patient outcomes, NDNQI administrative, data was provided by the hospital. The dependent variables were unit rates for falls, falls with injury, hospital acquired (HA) decubitus ulcers, catheter associated urinary tract infections (CAUTI), and central line associated blood stream infections (CLABSI). Statistical models were generated for each of the five dependent variables. The independent variables were the units' patient safety culture as measured by overall patient safety perception (OPSP) and patient safety grade (PSG), compassion fatigue (CF) - (secondary traumatic stress - STS, burnout - BO), and compassion satisfaction (CS). multiple regression analyses were

conducted to determine the impact of the predictors: Patient safety culture (as determined by OPSP, teamwork, sup/manager on patient safety, organizational learning, staffing, error feedback, error non-punitive, and open communications), compassion fatigue (CF) (as determined by BO and STS scores), CS, and the addition of, years as RN, and years in specialty, and covariate unit type on the five nurse-sensitive patient outcomes: Falls, falls with injury, HA pressure ulcers, CAUTI, and CLABSI.

Results

Analyses to test Bronfenbrenner's bioecological model incorporated all five nested context systems. Which, demonstrated the nurses' interactions with their immediate environment:

1. Microsystem (STS, BO and CS): At the microsystem level two-way interactions between compassion fatigue constructs and compassion satisfaction construct were significant on CLABSI rates. This demonstrates significant interactions between the microsystem and the exosystem.
2. Mesosystem (unit type): At the mesosystem unit type was significant across all outcomes; this is an expected finding as the outcome rates reported were specific to the respective unit.
3. Exosystem (falls, falls with Injury, HA pressure ulcers, CAUTI, and CLABSI): The exosystem is reflective of the healthcare policy and regulatory expectations. Falls with injury rate demonstrated significant interactions with elements of the microsystem (CS) and macrosystem (OPSP). CLABSI rate demonstrated significant interactions with the microsystem (BO, STS, and CS).
4. Macrosystem (OPSP, teamwork, sup/manager on patient safety, organizational learning, staffing, error feedback, error non-punitive, open communications): The macrosystem identified staffing, Teamwork, and error non-punitive as significant predictors of outcomes. Non-punitive response to reported errors was a better predictor of HA pressure ulcer rate. Units with a higher percent positive response non-punitive response on error score, that is, nurses feel that their mistakes and event reports are not held against them and that mistakes are not kept in their personnel file, have a lower HA pressure ulcer rates. These significant findings demonstrates the importance for nursing managers to maintain a unit just culture where errors are viewed as system failures rather than individual failures.
5. Chronosystem (years as RN, years in current specialty, years at the hospital, and years on the current unit): At the chronosystem years as RN and years in specialty were significant predictors of outcomes. Units with more senior nursing staff had a lower falls and falls with injury rate. This demonstrates nurses' gain enhanced patient safety skills with experience.

Conclusion

Bronfenbrenner's bioecological model help to understand the complexity and multidimensionality of patient safety culture. The complexity is present at different levels and is well illustrated in each of the model's systems. Improvement to the patient safety culture requires development in several systems of the Bronfenbrenner's bioecological model, such as communication, teamwork, and leadership support in the macrosystem. There is no "quick fix" to transforming organizations. It will take time and commitment but the benefit to both patients and staff could be considerable.