

Why Do Nurses Make Errors? Everyone's Human!

Cheryl Roth, PhD, WHNP-BC, RNC-OB, RNFA

HONORHEALTH.

Disclosure

- The speaker has no financial conflicts of interest and nothing to disclose.

Objectives

- Review the definition of Human Factors
- Discuss the steps of a Delphi Study
- Identify three human factors contributing to nursing errors.

It all started with Inattentional Blindness.

[Inattentional blindness video](#)

What are Human Factors?

- The International Ergonomics Association (as cited in Human Ergonomics Society, 2000) defines human factors (which is also termed ergonomics) as the "scientific discipline concerned with the understanding of interactions among humans and other elements of a system, and the profession that applies theory, principles, data, and other methods to design in order to optimize human well-being and overall system performance" (para. 5).
- What are the things we cannot control because we are human?
 - Fatigue
 - Forgetting things
 - Environmental Issues
 - Miscommunication
 - Shock
 - Focus issues
 - Emotions
 - Time

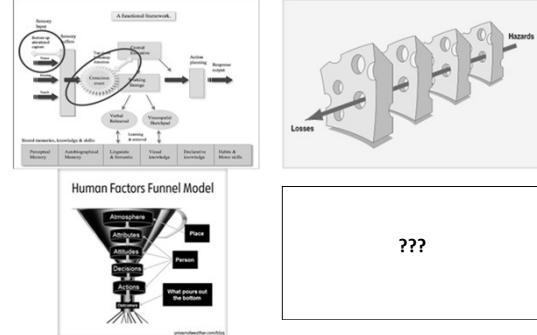
Gap in the Literature

- ❖ "Humans commit errors for a variety of known and complicated reasons" (Kohn, Corrigan & Donaldson, 2000, p. 65).
- ❖ Brous (2008) stated that "unintentional human errors occur in clinical practice and are inevitable".
- ❖ A search of CINAHL, Medline, PsychInfo, and Religion and Philosophy Collection on medical errors and human factors
- ❖ Few articles really addressed human factors:
 - ❖ Holden, et al., 2011: Number of patients assigned and nursing errors
 - ❖ Scanlon, & Karsh, 2010: Distraction and nursing errors

Purpose

To identify human factors that cause nursing errors; and to identify the constructs of likelihood to cause error, ability to intervene, importance, and commonality relating to human factors causing errors.

Conceptual Framework



Delphi Surveys

- ❖ Delphi Survey with two iterations
- ❖ *Using Delphi Technique to Identify Human Factors Contributing to Nursing Errors*
 - ❖ What are the human factors that contribute to nursing errors?

Sample

- ❖ Delphi Survey
 - ❖ 18 Quality Assurance, Risk Management, Patient Safety Nurses from two hospital systems (Arizona and Texas)
 - ❖ 12 Staff Nurse volunteers
 - ❖ 5 did not complete first survey (n=25)
 - ❖ 1 additional did not complete second survey (n=24)

Methods/Data Collection

- ❖ Delphi Survey with two iterations
 - ❖ Online survey of Expert Panel
 - ❖ Demographics
 - ❖ "Please tell me all of the things you can think of that might contribute to a medical error. List as many as you wish. Please take your time to think about these answers, and think beyond the surface issues."
 - ❖ Definition of Nursing Error and Human Factors
 - ❖ Questions regarding medication errors
 - ❖ 249 Answers Themed for 28 Items

Methods/Data Collection

- ❖ Second Round Delphi Survey:
 - ❖ Likert-Type Survey in Qualtrics regarding Likelihood to Cause Errors for 28 items identified
 - ❖ DCV Scoring used to determine weak factors, minor factors and major factors

Instrument Survey 2

	Not important At All	2	3	4	5	6	7	8	9	Extremely important
1. Fatigue, from lack of sleep	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Fatigue, from too many hours worked	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Juggling, too heavy work load	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Work is too fast-paced.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Non-clinical demands (concerns re: HCAPS scores, SCIP measures, patient satisfaction)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Findings

- ❖ Delphi Surveys
 - ❖ 24 Human Factors identified
 - ❖ 3 Themes:
 - ❖ 1. Nurse's biophysical state (tired)
 - ❖ 2. Unit's environmental state (busy)
 - ❖ 3. Tolerated general risk situation (bad policy)

Hospital-Based Nurse Survey

- ❖ Likert-type survey
- ❖ *Hospital Nurses' Perceptions of Human Factors Contributing to Nursing Errors*

Sample

- ❖ Hospital-Based Nursing Survey
 - ❖ 1808 Registered Nurses employed
 - ❖ Survey sent out from Quality Director through Managers and Directors
 - ❖ n=393

Research Questions

- ❖ Hospital-based Nurses Study:
 1. What are nursing beliefs about the likelihood, ability to intervene, importance, and commonality of nursing errors?
 2. What is the relationship of demographics to the identified human factors in nursing errors?

Methods/Data Collection

- ❖ Hospital-Based Nurses Survey:
 - ❖ Qualtrics Survey Participation was encouraged by using a survey tool that takes a limited time frame to complete
 - ❖ Reminder emails sent after one week and two weeks.
 - ❖ A drawing for an electronic tablet was offered, and one participant was chosen to receive the tablet after data collection was completed.

Instrument Survey 3

	How likely is this item to cause a nursing error?	How much ability does the nurse have to intervene is this item?	How important is this item to the chance of an error?	How common is this item in nursing errors?
Fatigue from lack of sleep	1.234567890	1.234567890	1.234567890	1.234567890
Fatigue from too many hours worked	1.234567890	1.234567890	1.234567890	1.234567890
Swamping too heavy work load	1.234567890	1.234567890	1.234567890	1.234567890
Work too fast paced	1.234567890	1.234567890	1.234567890	1.234567890
Non-clinical demands	1.234567890	1.234567890	1.234567890	1.234567890
Lack of nursing competency or knowledge	1.234567890	1.234567890	1.234567890	1.234567890

Findings

- ❖ Hospital-Based Nurse Survey
- ❖ Top 10 Factors for Likelihood, Intervenable, Importance, Commonality

Top Ten Likely Reasons for Nursing Errors in Hospitals

Most Likely Reason to Cause Nursing Errors in Hospitals		
	Mean	SD
1. Nurse impaired by a substance	9.13	2.39
2. Swamping	8.90	2.10
3. A problem with communication	8.90	2.51
4. A lack of critical thinking	8.56	2.44
5. Errors made by others that nurses are expected to recognize and fix	8.55	2.45
6. Nurse acting outside the scope of practice	8.05	2.39
7. Work is too fast-paced	7.92	2.26
8. Nurse placed in an unfamiliar circumstance	7.88	2.52
9. A problem with a policy or procedure	7.72	2.59
10. Fatigue due to lack of sleep.	7.70	2.25

Top Five Likely, Intervenable, Important, and Common Reasons

- Likely
 1. Nurse impaired by substance
 2. Swamping
 3. Problem with communication
 4. Lack of Critical Thinking
 5. Errors made by others that nurses are expected to fix
- Important
 1. Swamping
 2. Nurse impaired by substance
 3. Errors made by others that nurses are expected to fix
 4. Problem with communication
 5. Lack of critical thinking
- Intervenable
 1. Nurse impaired by a substance
 2. Nurse acting outside the scope of practice
 3. Problem with communication
 4. Problem with teamwork
 5. Errors made by others that nurses are expected to fix
- Common
 1. Swamping
 2. Work is too fast-paced
 3. Problem with communication
 4. Fatigue from too many hours worked
 5. Errors made by others that nurses are expected to fix


Likelihood Factor Analysis

- Four themes explained 55% of the variance of the likelihood scores.
- Four themes
 - Loss of focus (5 factors for 38% of variance)
 - Unhealthy environment (5 factors for 7%)
 - Interpersonal deficits (4 factors for 5%)
 - Overwhelmed (3 factors for 5%)

Limitations

- ❖ Low participation rate in hospital-based nurse survey
 - ❖ Survey fatigue
 - ❖ Distribution
- ❖ Magnet hospital base

Swamping



This patient is complaining of tightness in the chest


This patient needs pain meds now

This patient is waiting on you for discharge

The bed alarm is going off on this patient

Attentional Divot

Why did I walk in this room?



Recommendations

- ❖ Education for nurses on signs of substance impairment
- ❖ New tools to identify swamping and work that is too fast-paced and methods to intervene
- ❖ New technology to facilitate communication
- ❖ All team members held accountable for errors by others that nurses are expected to recognize and fix

Recommendations

- ❖ Development of nursing model that identifies common reasons for loss of focus
- ❖ Work with nurses to develop a healthy work environment
- ❖ Focused education for nurses on the impact of fatigue and swamping

Implications for Research

- ❖ Replicate Study
- ❖ Further research on mediators for loss of focus
- ❖ Research expanding on the identified factors and themes: swamping, attentional divot, inattention blindness

Roth, C., Wieck, K.L., Fountain, R., & Haas, B. (2015). Hospital nurses' perceptions of human factors contributing to nursing errors. *Journal of Nursing Administration, 45:5*, 263-269.