

The background of the slide features a large, faint watermark of the St. Catherine University logo. The logo consists of a central circular emblem with a cross-like design, surrounded by several stylized, fan-like shapes that radiate outwards, resembling a stylized sunburst or a series of hands reaching out. The entire watermark is rendered in a light purple color against the darker purple background.

ST. CATHERINE UNIVERSITY

A LOW FIDELITY SIMULATION OF THE CONCEPT OF FRAILTY:
TIME COMPRESSION AS A TOOL TO IDENTIFY
MANIFESTATIONS OF FRAILTY, TO PLAN INTERVENTION AND
TO CONDUCT FAMILY CONFERENCES

Sue Bikkie DNP, GNP, GCNS, APRN-BC

Mary Lagaard DNP, GNP, APRN-BC

April 13th, 2013

ST. CATHERINE UNIVERSITY



St Catherine's Student Profile

- Associate Degree students–271
- Bachelor of Arts Degree–243
- RN to BSN program–65
- Adult/Gero, Pediatrics and Neonate NP students–69
- Nurse Educator students–21
- DNP Students–31
- Total of 90 Masters students

Background

Frailty is prevalent (7%–23% Varies with definition)

- Associated with risk of health compromise
- Associated with increased utilization of services (Rockwood, 2000)

Institute of Medicine (IOM) has called for a change in nursing education to address complex care of the rapidly rising numbers of older adults in the community setting. (IOM,2011)

Literature Review

Frailty—complex adaptive system with inflammatory, endocrine, skeletal, neurological system changes, genetic variations, and functional changes

Frailty may have a cluster of multiple phenotypes
(Walstrom, et al., 2006)

How to frame this intricate, changing, data set?

Outline for simulation development (Guimond, et al., 2012)

- * Cognitive task analysis
- * Lack of nurse practitioner, directional tools with frailty
- * Derived an analysis tool from literature on frailty

Literature Review

Will simulation help teach a complex frailty assessment tool to nursing practitioner students?

Johnston, et al (2012) role modeling with clinical judgment can improve clinical judgment

Richards (2012) simulation can also improve student satisfaction and self-confidence

Smith & Barry (2013): how simulation can best be utilized for geriatric care, especially in home setting, is not clearly available.

Research

HYPOTHESIS: Nurse practitioner learning of frailty

➤ (a complex adaptive theory) assessment parameters is improved with stimulation.

➤ **QUESTIONS:**

1. Is there improved retention of assessment parameters of frailty with a video simulation?
2. Does video modeling improve clinical judgment of student nurse practitioners in assessing frailty?
3. How is student's learning affected by use of simulation?

Methods

- **Study Design:** Quasi experimental. **Pilot** in an urban private school in Midwest. Approval to conduct was provided by institution's Internal Review Board
- **Sample:** nonprobability, convenience sample of second semester nurse practitioner students (2012–2013 cohort)

Measures

- Pre and post test, 20 item multiple choice. Was not reviewed by content experts for validity
- Post simulation: **Objective Structured Clinical Exam**
 - Simple yes/no: Identified frailty assessment parameters in case study
 - Used SPIKES format in sharing findings with “daughters.” Yes/no
 - Questions post experience to capture qualitative data
- Assessment framework for frailty was developed as a tool to conceptualize complexity of the syndrome.



Assessment Tool

FRAILTY ASSESSMENT PARAMETERS

ATTACHMENT

BALANCE

COGNITION CHRONIC DISEASE

DEPRESSION DRUGS DRIVING

ENERGY: FOOD

FUNCTION FUNCTION FUNCTION

Procedure

- **Fourth week:** Pretest–Frailty assessment, lecture–Frailty and SPIKES format for difficult conversations.

- **Fifth week:** Simulation of Anna Nelson–designed to reflect assessment parameters in lecture.
 - First meeting: Anna as an engaging older adult.
 - Second: Anna 6 years later with daughter attending
 - Third: Nurse practitioner and daughter have conversation when Anna goes to the lab.

- **Sixth week:** OSCE testing. Post test. Debriefing questions.

Data Analysis:

MEASURE	COMPAIRISON OF CONTROL AND SIMULATION GROUPS
P value: Two tailed At p value < 0.5	0.3010 (Not statistically significant)
Confidence Interval	-2.74-0.88
Degrees of freedom	26
Standard error of the difference	0.880

Question One: Students learned from lecture.

Data Analysis:

MEASURE	COMPAIRISON OF CONTROL AND SIMULATION GROUPS
P value: Two tailed At p value < 0.5	0.3089 (Not statistically significant)
Confidence Interval	-1.53-0.53
Degrees of freedom	11
Standard error of the difference	0.4

Question Two: There was NOT improved learning on assessment of frailty parameters with simulation

Debriefing–Themes

- Language
- Ethics
- Simulation model gave them confidence
- A/F tool helped retain the frailty assessment parameters
- Did not study; wish they had

Question Three: Students had more confidence in their ability to assess frailty because of the A/F tool and modeling with simulation.

Results

- Students learned about assessment of frailty
 - A to F assessment issues
- Learned from lecture
- Qualitative outcomes from debriefing
 - Confidence
 - Language/scripting
 - Need to study
 - A-F assessment tool helped frame student's thinking

Conclusions

- We did not ask the right question:
 - Instead of asking will simulation help nurse practitioner students retain information about assessment of frailty?
- **What are teaching strategies that are effective to teach a framework of a complex adaptive system concept?**
- As the literature says: Simulations help build confidence

Barrier & Limitations

- Inexperienced teachers and researchers
- Tools
 - Consider using Student Satisfaction and Self-confidence in learning Scale (NLN)
- Evaluation methods
 - “Daughters”
- Standardization with one tester
 - Panopto
 - Manpower
- Small sample size
- Homogeneous population and learners

Variables to consider

- Diversity of students
- Level of experience of students
- Recruitment process
- Study communication

Future Directions

- How to improve learning of a complex concept?
- How to frame frailty in a way that provides a basis for meaningful intervention and assessment?
- Continue simulations
- Consider using concept mapping to teach a complex system concept

Research Team Members





References

- Andrew, MK, Mitnitski, AB, & Rockwood, K. (2008) . Social vulnerability, frailty and mortality in elderly people. *PLoS ONE*, 3, e2232.
- Bagri, AS, Roos, BA, & Ruiz, JS. (2008). Simulation technology in geriatric education. *Geriatric Aging*. 11, 596–600.
- Baird, S, Hill, L, Rybar, J, Concha–Garcia, S, Combra, R, & Patrick, K. (2010). Age–related driving disorders: Screening in hospitals and outpatient settings. *Geriatrics and Gerontology International*, 10, 288–294.
- Baile, WF, Buckman, R, Lenzi, R, Glober, G, Beale, EA, & Kedelka, AP. (2000). SPIKES—A six–step protocol for delivering bad news: Application to the patient with cancer. *The Oncologist*. 5, 302–311.
- Boeckxstaens, P, Graaf, P,. (2011) Primary care and care for older person: position paper of the European Forum for Primary Care. *Quality in Primary Care*. 19 (6), 369–89.
- Carr, DB, Flood, KL, Steger–May, K, Schechtman, KB, & Binder, EF. (2006). Characteristics of Frail Older Adult Drivers. *Journal of the American Geriatrics Society*, 54(7), 1125–1129.
- CanDrive. *CanDrive Cohort Study of Older Drivers*. (Cited 22 February 2013) Available from URL: <http://www.candrive.ca/en/research-projects/42.html>.
- Chang, SS, Weiss, CO, Xue, Qian–Li, Fried, LP. (2012). Association between inflammatory–related disease burden and frailty: Results from the Women’s Health and Aging Studies (WHAS) I and II. *Archives of Gerontology and Geriatrics*, 54, 9–15.
- Fedarko, NS. (2011). The biology of aging and frailty. *Clinics in Geriatric Medicine*., 27(1), 27–37.
- Foley, DJ, Heimovitz, HK, Gralnik, J et al (2002). Driving life expectancy of persons aged 70 years and older in the United States. *American Journal of Public Health*, 92, 1284–1289.

References

- Forneris, SG, Crownover, JG, Dorsey, L, Leahy, N, Maas, NA, Wong, L, Zabriskie, A, &Zavertni. (2012). *Nursing Education Perspectives*, 33(3), 184–187.
- Fried,LP, Ferrucci, L, Darere, J, Williamson, JD, Anderson, G. (2004) Untangling the concepts of disability, frailty, and comorbidity: implications for improved targeting and care. *Journal of Gerontological Biologic Science Medicine*, 59, 255–263.
- Fried, LP, Hadley, EC, Walston, JD, et al. (2005). From bedside to bench: research agenda for frailty. *Science Aging Knowledge Environment*. 31. pe24
- Gill, TM, Gahbauer, EA, Allore, HG et al. (2006). Transitions between frailty states among community–living older persons. *Archives Internal Medicine*,166,418–23.
- Gnjjidic, D & Hilmer, SN (2012). Potential contribution of medications to frailty. *Journal of American Geriatric Society*. 60(2): 401–405.
- Hackstaff, L. (2009). Factors asociated with frailty in chronically ill older adults. *Social Work in Health Care*. 48: 798–811.
- Howe, TE, Rochester, L, Neil, F, Skelton, DA, & Ballinger, C. (2012) Exercise for improving balance in older people. *Cochrane Collaboration*, John Wiley & Sons, Ltd., New Jersey.
- Institute of Medicine. *The future of nursing: leading change, advancing health*. Washington, DC: The National Academies Press, 2011.
- Johnson,EA, Lasater, K, Hodson–Carlton, K., Siktberg, L, Sideras, S., & Dillard, N. (2012).Geriatrics in simulation: Role modeling and clinical judgment effect. *Nursing Education Perspectives*.33(3), 176–180.
- Kaiser, MJ, Bandinelli, S &Lunenfeld, B. (2009). The nutritional pattern of frailty—Proceedings from the 5th Italian Congress of Endocrinology of Aging, Parma, Italy, 27–28 March 2009. *The Aging Male*.12(4): 87–94.
- Lacas, A. & Rockwood, K. (2012). Frailty in primary care: a review of its conceptualization and implications for practice. *BMC Medicine*, 10,4– 9.

References

- Lange, JW, Mager, D, Greiner, PA, & Saracino, K. (2011). The ELDER Project: educational model and three-year outcomes of a community-based geriatric education initiative. *Gerontology and Geriatrics Education*, 32 (2), 164–181.
- Lin, JS, Whitloc, EP, Eckstrom, E, Fu, R, Perdue, LA, Beil, TL, & Leipzig, RM. (2012). Challenges in synthesizing and interpreting the evidence from a systematic review of multifactorial interventions to prevent functional decline in older adults. *Journal of American Geriatric Society*. 60(11), 2157–66.
- Marengoni, A, Fratiglioni, L, Bandinelli, S, & Ferrucci, L. (2011). Economic status during lifetime and cognitive impairment no-dementia in late life: The population-based aging in Chianti area (InCHIANTI) study. *Journal of Alzheimer's Disease*. 24, 559–568.
- Marottoli, RA, Mendes de Leon, CF, Glass, TA, et al. (1997). Driving cessation and increased depressive symptoms: prospective evidence from the New Haven EPESE. Established Populations for Epidemiologic Studies of the Elderly. *Journal of the American Geriatric Society*, 45, 202–206.
- Milaneschi, Y, Bandinelli, S, Corsi, AM, Vaxxana, R, Patel, KV, Ferrucci, L, & Guralni, JM. (2010). Personal mastery and lower body mobility in community-dwelling older persons: The Invecchiare in Chianti Study. *Journal of the American Geriatrics Society*, 58, 98–103.
- Mitniski, AB, Fallah, N, Rockwood, MR, & Rockwood, K. (2011). Transitions in cognitive status in relation to frailty in older adults: a comparison of three frailty measures. *Journal of Nutrition and Healthy Aging*, 15(10): 863–7.
- Norman, J. (2012). Systematic review of the literature on simulation in nursing education. *American Journal of Black Nursing Faculty*. 23 (2), 24–28.
- Ready, RE, Ott, BR, & Grace, J. (2005). *Journal of American Geriatric Society* 51: 32–7.
- Richards E, Simpson V, Altonen P, et al. (2010). Public health nursing student home visit preparation: the role of simulation in increasing confidence. *Home Health Nurse*. 228:631–638

- Rockwood, K, Hogan, DB, McKnight, C. (2000). Conceptualisation and measurement of frailty in elderly people. *Drugs and Aging*. 17(4), 295–302.
- Rockwood, K. & Mitnitski, A. (2011). Frailty defined by deficit accumulation and geriatric medicine defined by frailty. *Clinic in Geriatric Medicine*, 27(1), 17–26.
- Rockwood, K., Mogilner, A, Mitnitski, A.(2004). Changes with age in the distribution of a frailty index. *Mech Ageing Development*. 125 (7), 517–9.
- Romero–Orturo, R, Walsh, CD, Lawlor, BA, Kenny, RA. (2010). A frailty instrument for primary care: findings from the Survey of Health, Ageing, and Retirement in Europe (SHARE). *BMC Geriatrics*, 10, 57– 69.
- Santos–Eggman, B, Kamanola, K Cuenoud, P, Spagnoli, I, Unod, J. (2009). Prevalence of frailty in middle–aged and older community–dwelling Europeans living in 10 countries. *Journal of Gerontological Aging biological Science Medicine Science*, 64(6), 675–681
- Sirven, N. and Debrand, T. (2012). Social capital and health of older Europeans: Causal pathways and health inequalities. *Social Science and Medicine*, 75, 1288–1295.
- Smith, SJ, & Barry, DG. (2013). An innovative approach to preparing nursing students for care of the elderly in the home. *Geriatric Nursing*. 34(1), 30–34.
- Vermeulen, J, Neyens, JCL, van Rossum, E, Speeuwenbergh, MD & de Witte, LP.
- (2011). Predicting ADL disability in community–dwelling elderly people using physical frailty indicators: a systematic review. *BMC Geriatrics*, 11, 11–33
- Walstrom J, Hadley EC, Ferrucci, L, Guralic, JM, Newman, AB, Studenski, SA, Ershler, W, Harris, T, & Fried, LP. (2006). Research agenda for frailty in older adults: Toward a better understanding of physiology and etiology: Summary from the American Geriatrics Society/National Institute on Aging Research Conference on Frailty in Older Adults. *Journal of the American Geriatric Society*. 54: 991–1001.
- Weiss, CO. (2011). Frailty and chronic diseases in older adults. *Clinics in Geriatric Medicine*, 27 (1) 39–52.
- Woods, NF, LaCroix, AZ, Gray, SL, et al. (2005) Frailty: emergence and consequences in women aged 65 and older in the women’s Health Initiative Observational Study. *Journal of the American Geriatrics Society* 53(8): 1321–30.

Data Analysis: Results on pre/post test

MEASURE	CONTROL	SIMULATION GROUP
P value: two tailed At p value < 0.05	0.0433 (Significant)	0.0164 (Significant)
Confidence Interval	3.75–0.06	3.46–0.39
Degrees of freedom	25	24
Standard error of the difference	0.895	0.745