Oral Defense Announcement
University of Missouri – St. Louis Graduate School

An oral examination in defense of the dissertation for the degree
Doctor of Philosophy in Nursing

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B.A. in Psychology, Maryville University, 2009
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Discovering Hidden Signs and Symptoms of Heart Failure in the Electronic Health Record
Using the Omaha System

Date: July 21, 2021
Time: 1:00 - 2:30 p.m.
Place: Remote

Abstract
For the past 30 years, heart failure (HF) has been in the top 3 readmission diagnoses with patients discharged to community care. This is costly to the healthcare system and negatively impacts the patient’s quality of life. The purpose of this study is to evaluate a community care database to determine if previously under-considered latent variables exist that could provide early detection of heart failure signs and symptoms. The theoretical and conceptual frameworks surrounding this work are the Omaha System and Donabedian’s structure, process, and outcomes theory for healthcare quality improvement supported by Neuman’s Systems Model. The Omaha System was constructed on the combined basis of these theoretical underpinnings and includes three components: The Problem Classification Scheme, The Intervention Scheme, and The Problem Rating Scale for Outcomes. This study was a retrospective, descriptive, observational, comparative study using secondary data. Major HF-associated signs and symptoms related to problems of circulation and respiration were queried. Latent Class Analysis (LCA) was used to identify if other significant groupings of signs and symptoms were associated with heart failure signs and symptoms. Evaluation of the sample for signs and symptoms of HF related to the Omaha System Problems of Respiration and Circulation revealed 4215 individuals. LCA revealed four significant groupings of signs and symptoms related to the problems of Heart failure, Mental health, Cognition, and General/Other. Further analysis determined that the HF group had the most interventions and visits yet had the lowest change in Knowledge, Behavior, and Status scores indicating that HF required intensive community based care to maintain their status in the community environment without benefiting from significant final status improvement. Analysis revealed that patients in the Cognition group benefited the most from increased visits and interventions. This research suggests early identification of Mental Health and Cognition changes may help defer HF exacerbations by initiating treatment earlier and enlisting community support. A HF exacerbation risk algorithm running in a community care electronic health record may help identify HF patients at risk of further disease progression where early intervention is most impactful.

Defense of Dissertation Committee
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