

Principal Investigator	Title of Project	Department
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ABSTRACT

No existing dyspnea measure is focused on what patients perceive in terms of intensity, sensory quality, and distress of dyspnea, and none is theoretically or psychometrically suitable for serial assessment of dyspnea in acute care settings. The purpose of this nonexperimental study is to validate, among inpatients with heart failure (HF), a dyspnea measurement model derived from a preliminary study of dyspnea in emergency department patients with exacerbated chronic obstructive pulmonary disease (COPD). Specific aims for the study are: (1) To validate among patients with HF a clinically focused measurement model of acute changes in dyspnea intensity and sensory quality that is simple enough to be clinically useful in acute care settings; and (2) To assess responsiveness of a rating scale or scales derived from the model by evaluating score differences in dyspnea ratings against (a) patients' subjective global estimates of change (transition ratings) and (b) markers of change in clinical condition over the same interval (i.e., changes in weight, level of care, or O2 requirements). Study hypotheses are: (1) a single three to five factor measurement model will apply as well to patients with HF as to patients with COPD, and (2) a rating or ratings derived from the model will be responsive to changes in condition and self-reported change (transition ratings) in inpatientw with HF. A sample of 200 inpatients with HF will be recruited over the 2 years of the study. Participants will be asked to complete a daily dyspnea questionnaire and perform bedside spirometry (forced vital capacity and forced expiratory volume in the 1st sec) on three consecutive days; b-type natriuretic peptide (BNP) will be analyzed at study entry and exit. Exploratory analyses will examine the degree to which changes in dyspnea distress, intensity, or sensory quality are associated with changes in spirometry or BNP values over the study interval. The measurement model comprises three to five sensory quality factors. Confirmatory factor analysis in the context of structural equation modeling will be used to test the model. These methods support internal and construct validity with respect to the model. If the model is valid in this patient population, which is distinct from the population in which it was derived, external validity will be supported, and a single measurement approach may be valid and responsive across diagnoses (i.e.,. If the model is not adequately supported in patients with HF, it would imply that specific measurement models and scales need to be developed for measuring dyspnea in patients of different diagnoses. The study is expected to lead to development of a brief multidimensional dyspnea rating that minimizes limitations of current dyspnea measures by enhancing construct validity, responsiveness to change, and external validity with respect to acute changes in dyspnea sensory quality, intensity, and distress.