

## National Graduate Nursing Survey: Chronic Disease, Symptoms and Self-Management

Kim K Kuebler\*

Advanced Disease Concepts LLC, Savannah, GA, USA

\*Corresponding author: Kim K Kuebler, DNP, APRN, ANP-BC, Advanced Disease Concepts LLC, Savannah, GA USA, Tel: 9125470905; E-mail: drkimkuebler@gmail.com

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### Abstract

The purpose for this project is to compare graduate nursing students' self-perceived knowledge with actual knowledge of chronic disease, symptom and self-management through a psychometrically reliable and valid 45-item objective examination. Methodology included three-separate email communications to over 800 US based graduate nursing school or program chairs, deans or directors encouraging their student participation. Two-hundred and fifty respondents provided demographic information from the survey and 120 graduate nurses completed the self-knowledge survey and objective knowledge examination. Graduate nurses in their last year of academic preparation were targeted in both Masters and Doctoral level course work. The results showed an overall mean score of less than 70% from the objective examination and there was not statistically significance between self-rated knowledge with actual knowledge.

**Keywords:** Chronic disease; Symptoms; Self-management; Graduate nursing education

### Introduction

The United States is in the midst of a major demographic shift. In the next four decades, people aged 65 and older will make up the largest percentage of the population. The ratio of people aged 65 and older to people aged 20-64 is expected to rise by 80% [1]. The oldest of the 80 million baby boomers reached age 65 in 2011 with the rate of 10,000 boomers per day entering into the Medicare system [2]. Currently, 75% of Americans are living with and dying from chronic disease and four out of six people have more than one chronic condition or multiple chronic conditions [1]. Three out of four Americans 65 and older have MCCs and two out of three Medicare beneficiaries [1]. MCCs are associated with substantial health care costs with 66% of total health care costs spent on the care for over one in four Americans with MCCs [1,3]. The Affordable Care Act has provided billions of dollars in funding for HHS to stimulate and promote innovative care models through multiple agencies that are focused on the burgeoning health care needs of the largest, fastest growing and costliest patient population. The prolonged course of illness and disability that occurs from MCCs often partner with concomitant symptoms such as pain, depression, shortness of breath and fatigue. If these symptoms are left under-treated, they can lead to a decrease in quality of life, increase in disease exacerbations, frequent hospitalizations and costly care for millions of Americans [4].

### Symptom Management or Palliative Care

The premise of symptom management or palliative care relates to the optimal management of the myriad of symptoms that are concomitant to MCCs. Effective symptom management can help to maintain physical functioning, reduce disease exacerbations, stabilize progressive disease decline and promote improved quality of life [5].

Despite the heavy symptom burden that accompanies prevalent MCCs these patients are often underrepresented in the use of palliative symptom management [6]. Unfortunately, most health care professionals perceive and associate palliative care with terminal or end-of-life care – when there is a withdrawal of active treatment as compared with the active management of the disease process. Because of this, the management of debilitating symptoms and the psychosocial and spiritual support that accompanies the integration of effective symptom management or palliative care is more often reserved for the last weeks and days of life [7,8].

### Current Nursing Knowledge and Practice

The Principal Investigator initially piloted this study in two undergraduate baccalaureate nursing programs in their final semester. The subjects were recruited from a Northeastern (NE), private, faith-based university, and a state-based university in the Southeast (SE) [5]. All eligible students at each institution participated fully in the project. The SE cohort was n=36 participants and the NE participants were n=54. Three domains were evaluated through the use of a valid and reliable self-rated knowledge survey. These domains include: the knowledge level of prevalent chronic disease states, the management of chronic disease, and the use of optimal symptom management. Using the Likert scale response criteria (1=lowest level of knowledge and 4=greatest level of knowledge) the highest score from the self-rated knowledge survey on prevalent chronic disease was diabetes mellitus in both cohorts (SE 3.06; NE 3.13). Similar findings came from each cohort's self-rated knowledge on the management of chronic diseases. Both cohorts scored highest on assessment (SE 3.08, NE 2.96) and they equally identified referral with the lowest score (SE 2.50; NE 2.17). The domain on symptom management revealed that the SE cohort scored highest on depression (2.94), with the NE scoring high on dyspnea (2.93). Both cohorts scored the lowest on cachexia (SE 2.14; NE 1.67) respectively. The overall mean score from the self-rated knowledge survey for the SE was 2.722 (Mdn=2.715) and for the NE, it was 2.602

(Mdn=2.610). The differences from the overall mean score between the SE and NE was statistically significant at .120 ( $p < .01$ ). Both cohorts scored similarly on the objective 45-item examination on chronic disease, management and associated symptoms. Comparing the overall examination score from both cohorts the mean score for the SE was 21.17 and the NE at 21.48. The differences between these scores

were not statistically significant ( $p > .05$ ). Both cohorts scored a mean score of less than 50% on the psychometrically sound 45-item objective examination.

### A Systematic Review

Database, Source, Author, Year	Type of Evidence	Methods	Sample	Data Collection/ Tools	Strengths Weakness Implications	Theme
CINHAL Nursing Outlook, Kohlenberg, Kennedy-Malone, Crane & Letvak (2007)	Case Studies to include dementia	Evidence based protocols developed by the University – used as examples of research utilization	Not Applicable	Institutional based protocols	Describes evidence based protocols – no specifics No content on chronic disease or symptom management	Chronic Disease Gerontology
PubMed, Journal of Professional Nursing, Thrunlow, Auerhahn, & Stanley (2006)	Case Studies	Nurse Practitioner & Clinical Nurse Specialist Competencies for Older Adult Care	Not Applicable	Not Applicable	Highlights model case studies for integrating gerontological content throughout APN curricula	Chronic Disease Gerontology
CINAHL. Medsurg Nursing. Hinch, Murphy, Lauer, (2005)	Clinical Exemplar	Infusion of chronic disease education and specific clinical experiences	Not Applicable	Not Applicable	Hospitalist focused approach to the acute care management of chronic diseases – prevention and episodic care	Chronic Disease Gerontology
PubMed Medsurg Nursng, Cranford, King, (2011)	Qualitative and Quantitative	Examining future NP's perceptions of fibromyalgia pain, quality of life and their preparedness to treat this patient population	21 convenience sample - Nurse Practitioner students	17-item non validated questionnaire	Understanding of fibromyalgia pain to quality of life Students not comfortable with managing the disease or its symptoms	Symptom Management
PubMed. Journal of Nursing Education, McConnell, Rugledge, Nevidjon, & Anderson, (2004)	Clinical Exemplar	Gerontological graduate nursing students learn evidence based approaches to managing urinary incontinence in long-term care residents	16 graduate students	Not Applicable	Primarily student observation of expert clinician in GU management	Symptom Management
PubMed, Patient Education and Counseling, Williams & Pace, (2009)	Integrative Literature Review	Reviewed literature from 1992-2007 – no restrictions to the type of research or findings	Yielded publications 13	Not Applicable	Review of the literature exploring problem based learning as an intervention for enhancing self management in chronic disease	Patient self care management
Crumbie et al (2004)	Literature Review	utilization of a theory synthesis process for a client focused approach for APN management of chronic disease	Not Applicable	Not Applicable	The model for promoting process engagement as a theory-driven intervention to for chronic disease care	Nursing Theory

**Table 1:** Findings from the Systematic Review

A recent systematic review was performed in collaboration with nine doctoral faculty to evaluate the current and available evidence to suggest the inclusion of chronic disease, symptom and self-management content within graduate nursing curriculum [9]. The

results from this comprehensive review of the literature are startling. The majority of the current literature on chronic disease, symptoms, self-management and graduate nursing education is predominately focused on end-of-life care where the use of palliative or symptom

management is limited only to the imminently dying – this content was not extended into the management of symptomatic chronic disease.

Initially, the investigators assumed that the review would identify significant publications that would be grounded in rigorous research. This review found one mixed method research publication that utilized a non-validated tool for data collection [9]. A total of seven papers were found despite an exhaustive review of the current databases: Pubmed, Medline, Ovid, Cochrane and Cinhal.

The investigators of this review conclude that a standardized approach does not exist on how best to integrate chronic disease, symptom and self-management content into current graduate nursing curriculum. The review revealed a lack of consistency regarding how much time is allocated to this content within graduate nursing curriculum. In light of the escalating predictions of an aging US population who are primarily diagnosed with chronic disease, and the current Federal initiatives – this systematic review indicates the importance to address chronic symptomatic disease management in graduate nursing curriculum and clinically prepare graduate nurse providers to care for the ensuing sliver tsunami [5-9]. The specific findings from this review can be seen in Table 1. Both of these studies prompted the national graduate nursing survey on chronic disease, symptoms and self-management.

### **National Graduate Nursing Survey: Knowledge in the Management of Chronic Disease, Symptoms and Self-Management**

Graduate nurses represent nursing leadership as clinicians, educators and researchers. These professionals will require the knowledge and skills to meet the demands of the largest and fastest growing US patient population. Graduate nurses who are educated and clinically prepared to effectively manage this patient population will be at the forefront of patient care to ensure optimal patient outcomes and reduce the costs of care associated with poorly managed symptoms and reductions in chronic disease exacerbations. The current federal initiatives in MCCs and the health care demands of an aging society prompted an evaluation and analysis of graduate nursing student knowledge and skill associated with symptomatic chronic disease and self-management.

Based upon the data from the previous two studies the Principal Investigator embarked upon a national graduate nursing knowledge survey on chronic disease pathophysiology, disease, symptom and self-management practices. The primary objective for this study was to evaluate if there were differences between undergraduate and graduate self-perceived knowledge when compared with actual knowledge in a graduate nursing population (Masters and Doctoral).

### **Methods**

Access to graduate nursing students in their last year of academic training was the result of three consecutive emails that targeted nursing program chairs or administrators from over 800 US based nursing programs. These designated contacts came directly from the purchase of the American Association of Colleges of Nursing (AACN) mailing list. Graduate program designees were asked to encourage student participation in this national project. A link to SurveyMonkey® was provided in the body of the email. Upon accessing the survey's web link the respondents first encountered the Consent to Participate, which described student anonymity associated with their participation.

Demographic data was obtained to identify region of residence, level of education, nursing licensure, projected area of NP certification and implementation and use of advance directives in any clinical setting. The use of the secure web link via SurveyMonkey® allowed the investigators to protect anonymity. The survey was collected between May 1, 2013 and March 1, 2014. Internal Review Board (IRB) approval was obtained through Georgia Southern University.

Student participation was voluntary and anonymous. After confirming consent to participate the student was then asked to complete a self-rated knowledge survey. This survey was used to evaluate three domains of graduate nursing knowledge related to prevalent chronic disease states, management of chronic disease, and optimal symptom and self-management. Student responses were based upon a Likert scale of 1 (no knowledge) to 4 (very knowledgeable). This survey has been piloted in three prior projects and has yielded consistent results [5]. The self-rated knowledge survey was used to capture graduate nurses' self-perceived knowledge and management of chronic disease. This provided baseline statistics.

Following the completion of the self-rated knowledge survey, the student then completed the 45-item quantitative, multiple-choice, knowledge measurement examination on the pathophysiology of common chronic conditions and optimal symptom and self-management. This examination has been peer reviewed and evaluated by test-re-test reliability and is currently being used as a palliative care educational module with approved continuing educational credits by the American Nurses Association [5]. The objective examination was collectively evaluated by the percentage (100%) of individual correct answers.

### **Statistical Analysis**

For each of the  $n = 121$  students who responded on the self-rated knowledge survey, a total score  $X$  was obtained by totaling the twenty-four individual-student Likert scale responses. Scores for those who responded to each question ranged from 24 (all 1's) to 96 (all 4's) Missing values for a given question were replaced by the average of the responses to the question. It is reasonable to assume that students responded to these question independently. The average and standard deviation of their total scores are and . A 95% confidence for the population mean is the interval. On the knowledge measurement examination, the number  $Y$  of correct responses was obtained for each student. The total correct for a student ranged from 0 to 45. The average and standard deviation of their total scores are and . A 95% confidence for the population mean is the interval. A reasonable model for the joint distribution of  $X$  and  $Y$  is a bivariate normal distribution since each is a sum of a large number of quantitative responses. Using this model, a joint 95% confidence region can be obtained for. There was no relationship between self-perceived knowledge and actual knowledge. Two measures of how strongly two measurements vary together linearly are the population covariance and its standardized version from the population correlation coefficient. The sample counterpart of is the sample correlation  $r$ . The formula for calculating sample counterparts to the population covariance and are basic statistical analysis. For these data, the investigators observed sample covariance and sample correlation  $r$  to be, respectively, 5.205 and 0.11439. A 95% confidence interval for is (-0.065,0.287). Since zero is in this interval, there is no strong evidence that is significantly different from zero. Hence, no strong evidence that a student's self-perceived knowledge as measured by  $X$  and actual knowledge as measured by  $Y$  are correlated.

## Results

Two-hundred and fifty respondents answered the demographic questions and of these, 121 respondents completed the survey in its entirety. The majority of students were from the Southeast (31.40%) and the Midwest (28.10%) followed by the Northeast (19.01%). The majority of respondents (87.60%) utilize Advance Directives in their clinical practice. Academic, licensure and credential information was entered by 250 students and the investigators cannot correlate this information with the survey respondents who completed the objective examination. Overwhelmingly, the majority of students were enrolled in either a Master's of Science program or a Doctor of Nursing Practice program. The first domain of the self-rated knowledge survey queried from a Likert score of 1=no knowledge to 4=very knowledgeable on the management of chronic disease. Graduate nurses rated diabetes management as their highest level of knowledge (3.2), Obesity, cardiovascular disease and chronic obstructive pulmonary disease (COPD) were equally rated (3.0). Students rated Stroke (2.8). Alzheimer's and end-stage renal disease were equally rated (2.7). The lowest scores were cancer (2.41) and HIV/AIDS (2.13).

The second domain of the self-rated knowledge survey queried knowledge about the assessment, evaluation, diagnostics, intervention/therapies, follow-up care, referrals and self-management practices in the care of patients with chronic disease. The highest rated scores were found in assessment (3.14), and evaluation (3.04), followed by self-management (2.98), referrals (2.94), follow-up care (2.91). Lastly, the lowest scores were intervention/therapies (2.84) and diagnostics (2.77). The final dimension of the self-rated knowledge survey was used to evaluate graduate nursing knowledge on the management of concomitant symptoms. Dyspnea received the highest rating (2.92), followed by depression (2.82), fatigue (2.77), dysphagia (2.69).

The respondents were more comfortable managing chronic non-malignant pain (2.58) vs. malignant pain (2.39) despite utilizing a similar management approach. Cachexia was rated the lowest (2.35). A comparison of the undergraduate nursing cohorts and the national graduate nursing students can be found in Self-Perceived Knowledge Survey of Chronic Disease, Symptom and Self-Management (Tables 2-4).

Subjects	CV	Cancer	Stroke	COPD	Diabetes	Obesity	ESRD	HIV AIDS	ALZ
SE BSN Students	2.56	2.56	2.56	2.86	3.06	3.05	2.42	2.65	
NE BSN Students	2.72	2.49	2.63	2.59	3.13	2.91	2.52	2.37	
National Graduate Students	3.0	2.13	2.8	3.0	3.2	3.0	2.7	2.13	2.7

**Table 2:** Mean Scores for Self-Perceived Chronic Disease Management Knowledge, (BSN students were not queried on Alzheimer's disease).

Subjects	Assessment	Evaluation	Diagnosis	Therapy	Follow-up	Referral	SM
SE BSN Students	3.08	2.86	2.47	2.81	2.78	2.50	
NE BSN Students	2.96	2.91	2.31	2.81	2.46	2.17	
National Graduate Students	3.14	3.04	2.77	2.84	2.91	2.94	2.98

**Table 3:** Mean Scores for Self-Perceived Management of Chronic Disease Knowledge BSN students were not queried on self-management practices).

Subjects	Non Malignant Pain	Malignant Pain	Dyspnea	Dysphagia	Depression	Insomnia	Fatigue	Cachexia
SE BSN Students	2.53	2.65	2.89	2.81	2.94	2.72	2.97	2.14
NE BSN Students	2.63	2.44	2.93	2.67	2.76	2.48	2.72	1.67
National Graduate Students	2.58	2.39	2.92	2.69	2.82	2.73	2.77	2.35

**Table 4:** Mean Scores for Self-Perceived Symptom Management Knowledge

The 45-item quantitative, multiple-choice, knowledge measurement examination on the pathophysiology of common chronic conditions and optimal symptom and self-management received a collective score of 70%. The following missed-test items identify student need to:

Recognize dyspnea as a cardinal symptom of congestive heart failure (CHF)

Understand the beneficial effects of beta-blockade in the management of CHF

Identify pertinent laboratory finding for acute respiratory failure

Review specific diagnostics to identify renal failure severity

Understand the effects from malignancies on patient-reported symptoms

Results on the immune system with a low CD4 count below 200/ $\mu$ L

Implementing cognitive assessment in confused patients

Utilizing anticonvulsants and antidepressants in neuropathic pain management

Evaluate depression in patients living with malignancy

Recognize antidepressant that does not have sexual alterations or anticholinergic effects

## Discussion

Although these projects do not reflect undergraduate and graduate nursing students in their entirety – they do provide data for consideration and concern. Surprisingly, the undergraduate and graduate nurses provided similar scores on the self-perceived knowledge survey. Missed questions by the graduate nurses from the objective knowledge examination together with the self-perceived knowledge of chronic disease management results suggest that this group of nurses is not adequately prepared to optimally manage the largest and most costly patient population living and dying from CHF and malignancy- the two most prevalent causes of death in the US.

Poorly managed symptoms precipitate chronic disease exacerbations. The graduate nurses identified a lack of knowledge on differentiating non-malignant pain from malignant pain – when these symptoms are assessed, managed and evaluated in a similar manner. The low self-perceived knowledge scores on intervention/therapy and diagnostics of chronic diseases is of concern and an opportunity for review and perform an evaluation of graduate nursing curriculum and clinical experiences - ensuring that both undergraduate and graduate nursing education provides the knowledge and skills to appropriately diagnose and manage the care needs of patients with chronic conditions.

## References

1. US Department of Health and Human Services (2012) HHS initiative on multiple chronic conditions.
2. Centers for Medicare and Medicaid (2010) Multiple chronic conditions: A strategic framework optimum health and quality of life for individuals with multiple chronic conditions.
3. Institutes of Medicine (2012) Living well with chronic disease: A call for public health action.
4. Centers for Disease Control and Prevention (2009) Healthy aging improving and extending quality of life among older Americans. *Chronic Disease Prevention and Health Promotion*.
5. Kuebler K (2012) Implications for palliative care nursing education. *Clinical Scholars Review* 5(2): 86-90.
6. Brooksbank M (2009) Palliative care: Where have we come from and where are we going? *Pain* 144: 233-235.
7. Corcoran AM, Casarett DJ (2010) Improving communication and rethinking hospice care. *Chest* 137: 1262-1263.
8. Gwyther I, Bremmem F, Harding R (2009). Advancing palliative care as a human right. *Journal of Pain and Symptom Management* 62: 1-8.
9. Kuebler K, Lampley T, Shake E, White-Hurst E, Taggart H et al. (2014) Systematic review: A collaborative partnership on evaluating graduate nursing education in chronic symptomatic disease. *Clinical Scholars Review*: 7 article 7.