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Method to Increase the Knowledge of  
Patient Pain Identification by Student Nurses

Diane Ream, MS, RN

Submitted to Cris Finn, Ph.D., RN, FNP, FNE

Regis University

May 12, 2017

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## **Executive Summary**

### **Method to Increase the Knowledge of Patient Pain Identification by Student Nurses**

#### **Problem**

Two research problems were identified as the basis of this research: 1. Quantifying and measuring subjective issues such as pain can be difficult for a nurse to standardize for effective care planning, and 2. Oftentimes in nursing education, students are taught to assess pain by only one measure – usually a pain scale – which is not a comprehensive measurement. Based on this identified problem, The PICO (population, intervention, comparison, and outcome) question which served to focus the Capstone Project was: Does the education about the COMT-RN increase the knowledge of patient pain identification and care planning by student nurses?

#### **Purpose**

The aim of this project was to determine if the use of an evidence-based, nurse-driven comprehensive outcomes management tool would improve student nurses' ability to identify patient pain and subsequently improve their care planning.

#### **Goals**

The general project focus was to evaluate the use of the Comprehensive Outcomes Management Technologies for Nurses (COMT-RN) tool in increasing student nurses' ability to identify patient pain and improve care planning. The specific focus was to determine if a brief exposure to a more comprehensive method of assessing pain would improve care planning. The expectation is that this improved pain identification and care planning would subsequently improve patient outcomes.

#### **Objectives**

The primary project objective was to increase student nurses' perception of their ability to identify patient pain, as evidenced by improvement in scores between the pre-test and post-test, using a correlation test and a t-test.

#### **Plan**

This study was a quasi-experimental pre-test-post-test design. The participant population included pre-licensure baccalaureate student nurses who were in their sixth quarter of the program. The study was exempt level. The educational presentation taught students about the use of COMT-RN and how it can be used in pain assessment and care planning.

#### **Outcomes, Results, and Recommendations**

The paired samples t-test revealed there was a significantly higher average score on the post-test than the pre-test,  $t = -20.867$ ,  $p = .000$ . This project provides a framework for future studies involving the use of COMT-RN in nursing education.

### **Acknowledgements**

I would like to thank my DNP Capstone Advisor, **Dr. Cris Finn**, for her expert advice throughout this challenging project. Without her support, understanding, and unfailing encouragement, this project would have been impossible.

I would also like to thank **Dr. Carol Goldstein**, whose professionalism and passion for improving access to healthcare for everyone profoundly inspired me.

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Most importantly, I would like to thank **Dr. Scott Primack**, the developer of COMT, which was the basis for this project. His expertise, time, and generosity in access to his materials and intellectual property made this project possible. It is my sincere hope that this research project leads to the implementation of COMT-RN nationwide.

## Table of Contents

|                                   |      |
|-----------------------------------|------|
| I. Preliminary Pages .....        | i    |
| A. Copyright Statement .....      | i    |
| B. Executive Summary .....        | ii   |
| C. Acknowledgements.....          | iii  |
| D. Table of Contents.....         | iv   |
| E, List of Tables .....           | vii  |
| F. List of Figures.....           | viii |
| G. List of Appendices .....       | ix   |
| II. Problem Recognition .....     | 1    |
| A. Research Aim.....              | 1    |
| B. Background.....                | 2    |
| C. PICO .....                     | 2    |
| D. Significance.....              | 2    |
| E. Scope.....                     | 3    |
| F. Rationale .....                | 4    |
| III. Theoretical Foundation ..... | 4    |
| A. PEPPA.....                     | 4    |
| B. Roy Adaptation Model.....      | 5    |
| IV Literature Review.....         | 6    |
| A. Evidence Based Practice .....  | 7    |
| B. Care Planning .....            | 8    |
| C. Nursing Education.....         | 9    |

|  |    |
|--|----|
| D. Pain and Quality of Life .....                    | 10 |
| E. Psychosocial Issues.....                          | 10 |
| F. DRAM .....  | 11 |
| V. Project Plan and Evaluation .....                 | 12 |
| A. Risk  |    |
| Analysis.....  | 12 |
| B. SWOT.....   | 12 |
| C. Driving and Restraining                           |    |
| Forces 15.....                                       |    |
| D. Resources and Sustainability.....                 | 15 |
| E. Feasibility and Risks.....                        | 16 |
| F. Stakeholders and Project Team.....                | 17 |
| G. Cost-Benefit Analysis .....                       | 17 |
| H. Mission, Vision, and Goals.....                   | 17 |
| I. Logic Model.....                                  | 18 |
| J. Subject Population and Recruitment .....          | 20 |
| VI. Methodology.....                                 | 20 |
| A. Outcome Measures.....                             | 20 |
| B. Study Variables, Design, and Data Collection..... | 21 |
| C. Sample.....                                       | 22 |
| D. Official Site Approval.....                       | 22 |
| E. Protection of Human Subjects .....                | 23 |

VII. Findings and

Results24.....

VIII. Discussion .....26

A. Evidence Based Practice Questions.....26

B. Theoretical Support.....26

IX. Limitations .....27

X. Contributions to Nursing .....28

XI. Recommendations for Future Studies .....29

XII. Conclusion.....29

XIII. References .....30

XIV. Appendices.....38



List of Tables

|  |    |
|--|----|
| I. Literature Search Terms .....               | 6  |
| II. Literature Search Levels of Evidence ..... | 7  |
| III. Paired Samples Statistics .....           | 25 |
| IV. Paired Samples Correlations .....          | 25 |
| V. Paired Samples Test .....                   | 26 |

List of Figures

|                              |    |
|------------------------------|----|
| I. Pre-test Histogram.....   | 36 |
| II. Post-test Histogram..... | 37 |

List of Appendices

|   |    |
|---|----|
| A. Literature Review Sample Table .....                             | 38 |
| B. Distress and Risk Assessment Method .....                        | 39 |
| C. Budget and Resources .....                                       | 45 |
| D. Logic Model.....   | 46 |
| E. Conceptual Diagram .....   | 47 |
| F. Participant Information Sheet .....                              | 48 |
| G. Timeline .....   | 49 |
| H. Pre-Test .....   | 50 |
| I. Post-Test .....  | 51 |
| J. Dr. Scott Primack Approval Letter .....                          | 52 |
| K. COMT-RN Education Module .....                                   | 53 |
| L. Agency Approval Letter .....                                     | 55 |
| M. Regis University Institutional Review Board Approval Letter..... | 56 |
| N. CITI Certificates .....  | 57 |

A patient's report of pain is subjective; measuring qualitative assessment data can be difficult for a nurse to standardize for effective management of care. Comprehensive Outcomes Management Technologies for Registered Nurses (COMT-RN) is a tool to improve the nurse's ability to identify and measure qualitative assessment data, individualize care planning, and provide a framework upon which to assess psychosocial and physical issues. This project evaluated the use of education about COMT-RN in increasing the knowledge of patient pain identification and improved care planning by student nurses.

### **Problem Recognition**

Two research problems were identified as the basis of this research:

1. Quantifying and measuring subjective issues such as pain can be difficult for a nurse to standardize for effective care planning.
2. Oftentimes in nursing education, nursing students are taught to assess pain by only one measure – usually a pain scale – which is not a comprehensive measurement.

### **Research Aim**

The aim of this project was to evaluate the use of an evidence-based, nurse-driven comprehensive outcomes management technologies tool in increasing the knowledge of patient pain identification and improve care planning by student nurses. It was proposed if nursing students had a brief exposure to a more comprehensive method of assessing pain, care planning would improve, and patient outcomes should improve.

This was as an evidence-based practice project, with a small sample size, not meant to develop new knowledge or to be generalized outside of the agency. The evidence gathered was intended to be used in the context of a patient's preferences and desires, the clinical situation, and the expertise of the clinician.

## **Background**

The tool informing this project was created by a physician called Comprehensive Outcome Management Technologies (COMT). It is used to assess psychosocial and physical issues to measure patient outcomes; COMT uses feedback from the patient for a comprehensive observation of responses to treatment to predict recovery outcomes. It was theorized this tool could be used to increase nursing students' knowledge of patient pain identification and improve their ability to plan care. The tool was redesigned for use as a nursing assessment and care planning tool and renamed Comprehensive Outcome Management Technologies for Nurses (COMT-RN).

## **PICO**

The PICO (population, intervention, comparison, and outcome) stands for question studied was: Does the education about the COMT-RN increase the knowledge of patient pain identification and care planning by student nurses?

- Population: Baccalaureate nursing students in the sixth quarter of the program
- Intervention: An educational module focused on COMT-RN emphasizing the use of COMT-RN for pain assessment and care planning
- Comparison: Knowledge, identification, and documentation of pain before and after the educational module was implemented.
- Outcome: Students demonstrate an increase in knowledge as evidenced by improved scores between pre- and post-education testing.

## **Project Significance**

The Institute of Medicine discussed the need for emphasis of evidence-based practice, quality improvement, and informatics in nursing care in its 2003 report, *Keeping Patients Safe*:

*Transforming the Work Environment of Nurses*. This study supports all three of these recommendations to deliver clinically focused patient-centered care with an innovative and sophisticated scientific approach. In its document, *The Essentials of Doctoral Education for Advanced Nursing Practice* (2006), the American Association of Colleges of Nursing stated that the Doctor of Nursing Practice (DNP) prepared nurse “requires a strong scientific foundation for practice. The scientific foundation of nursing practice has expanded and includes a focus on both the natural and social sciences” (AACN, p. 9). In keeping with the scientific underpinnings of the DNP role, and to make the original COMT tool apposite for use by nurses, COMT was restructured to meet the scope and standards of practice of nursing care providers, in addition to differentiating nursing science from medical science. The new iteration, COMT-RN, could be used as a reliable tool to assess pain and as a care-planning instrument to improve patient outcomes. This project reflects the components of clinical scholarship, patient care technology, and interprofessional collaboration for improving patient and population health that is the scientific foundation of advanced nursing practice (AACN, 2006).

### **Scope**

Participants in this project included pre-licensure student nurses from a college of nursing in Colorado. This project measured the level of knowledge they had about using an evidence-based tool in assessing pain, including appraisals of a patient’s ability to perform self-care, psychosocial issues that can affect care, and integration of these in care planning. It provided education about these areas, and introduced the use of COMT-RN. It measured their perceptions of their improved knowledge in pain assessment, the use of COMT-RN instruments in patient care planning. It introduced new ideas about assessment and care planning in the hopes this new

methodology would be instrumental in leading to improved care planning and patient outcomes in the future.

### **Rationale**

The significance of the project is that these results have value to clinical practice. The methods used in COMT-RN to integrate psychosocial and functional factors in pain assessment are innovative to nursing, although each instrument is already in use by physicians and has been the subject of research. The methodology used in COMT-RN offers a comprehensive pain assessment, accounting for a patient's ability to perform self-care, participate in work and leisure activities, level of anxiety and/or depression, and social support issues that affect outcomes, all of which should be a part of care planning. COMT-RN guides the nurse in quantifying psychosocial qualitative issues such as pain, anxiety, guilt, hope, and frustration and/or somatic issues such as weakness, tenseness, dizziness, and aching for consistency in care planning and collaboration with other members of the health care team. Student nurses may not be knowledgeable of how to effectively integrate these factors in their care planning, and it is hoped that the awareness of this method of assessment will result in improved patient outcomes.

### **Theoretical Foundation**

#### **PEPPA**

In following the Doctor of Nursing Practice Essentials (Zaccagnini & White, 2014), the framework and theoretical rationale for this project includes elements from the participatory, evidence-based, patient-focused process for guiding the development, implementation, and evaluation of advanced practice nursing (PEPPA) framework (McNamara, Giguère, St-Louis, & Boileau, 2009).

Although developed to provide role guidance to the newly created Specialized Nurse Practitioner (SNP) role in Canada (McNamara et al., 2009), many elements are pertinent to the doctor of nursing practice (DNP) role. One of these is:

...bringing best practice to the bedside, an important aspect of integrating nursing research into the practice of all nurses. The involvement of the SNP in the orientation and teaching of nurses assures an advancement of the profession, an improvement in care, and fills a need for learning (OIIQ, 2006) (McNamara et al., 2009, p. 321).

This project provided an opportunity to compare current practice education and best practice approaches in the area of pain identification, care planning, and outcomes management. This project did not test any nursing theory; however it does have theoretical influences that shaped the design of this study. The theoretical foundation used as the basis for this research study is Roy's Adaptation Model (RAM).

### **Roy Adaptation Model**

Sister Callista Roy's Adaptation Model of Nursing contains appropriate guidance for this study because the COMT-RN tool incorporates holistic approach to patient care planning, and the RAM's concepts include viewing a patient holistically. "The three concepts of her model are the human being, adaptation, and nursing. Under the concept of adaptation are four modes: physiological, self-concept, role function, and interdependence" (Petiprin, 2016). This model includes nursing actions of assessing the patient's capacity for adaptation and incorporating nursing care planning interventions to promote successful adaptation. COMT-RN includes both physical and psychological assessments. "The adaptation level...is evident when human beings are functioning as wholes..." (DeSanto-Madeya & Fawcett, 2016, p. 219).



### Literature Review

Literature that was reviewed for this project chiefly included research articles found by using the keywords: care planning, nursing education, pain, psychosocial issues, and quality of life; another area of the literature review included the Distress and Risk Assessment Method (DRAM). This yielded 63 relevant articles selected based on their level of evidence and study design relevancy to the PICO question. See Table 1 for a list of the number of articles that correspond to the search terms used.

**Table 1. Literature Search Terms**

| Keyword(s)              | Number of articles | Level I | Level II | Level III | Level IV | Level V | Level VI | Level VII |
|-------------------------|--------------------|---------|----------|-----------|----------|---------|----------|-----------|
| Evidence based practice | 7                  |         |          |           |          | 1       | 3        | 3         |
| Care planning           | 14                 |         |          |           | 1        | 2       | 8        | 3         |
| Nursing education       | 7                  |         |          |           |          | 1       | 5        | 1         |
| Pain                    | 16                 |         |          |           | 1        | 2       | 13       |           |
| Quality of life         | 5                  |         | 2        | 2         |          |         |          | 1         |
| Psychosocial issues     | 6                  |         |          | 1         | 2        | 1       |          | 2         |
| DRAM                    | 8                  | 1       |          | 1         | 4        |         | 1        | 1         |
| Total                   | 63                 | 1       | 2        | 4         | 8        | 7       | 29       | 12        |

Books, articles, and journals were analyzed using the Systematic Review Evidence Table Format (adapted from Thompson, 2011). These articles were analyzed and leveled using the Seven Tiered Levels of Evidence model adapted from Melnyk & Fineout-Overholt, (2005) in Houser, & Oman, 2011. Data bases utilized include EBSCO Host, PubMed, Academic Search Premier, ERIC, MEDLINE, OVID, PsycINFO, and ProQuest. Select areas and articles of the literature review are described below. Levels of evidence considered for this systematic review are in Table 2. See Appendix A for Literature Review Sample Table.

**Table 2. Literature Evidence Level**

| Evidence Level  | Number of articles |
|---|--------------------|
| Level I - Systematic review & meta-analysis of randomized controlled trials | 1                  |
| Level II - One or more randomized controlled trials                         | 2                  |
| Level III - Controlled trial (no randomization)                             | 4                  |
| Level IV - Case-control or cohort study                                     | 8                  |
| Level V - Systematic review of descriptive & qualitative studies            | 7                  |
| Level VI - Single descriptive or qualitative study                          | 29                 |
| Level VII - Expert opinion  | 12                 |
| Total   | 63                 |

**Evidence Based Practice**

Articles in support of the need for this research include Savvas, Toye, Beattie, and Gibson's study (2014) which stated the use of evidence-based practice "can demonstrate improvements in pain-related outcomes, such as better analgesic use and greater pain relief" (p. 1588). Underhill, Boucher, Rope, and Berry wrote (2012), "The novel approach to incorporating EBP into oncology nursing practice described in this article has been an opportunity for improvement of symptom management practices for patients with cancer, their families, and DFCI clinicians" (p. 249). Hutton, Hermens, and Zilvold (2000) investigated differences in treatment outcomes in patients using the Roland Disability Questionnaire, and concluded using a functional measurement tool (dynamometry) in conjunction with "psychological questionnaires suggests that these instruments might facilitate treatment indication in clinical practice" (p. 480). Proctor, Wade, Woodward, Pendleton, Baldwin, Tarrier, N., and ... Burns, (2007), noted:

An understanding of the psychological factors which can impede recovery in hip fracture is important for all professionals involved in rehabilitation...There is still relatively little known about this important area and further research is needed to provide a clear evidence base (p. 716).

Calmels, Béthoux, Condemine, and Fayolle-Minon (2005) compared low back pain functional assessment tools, and concluded that the Dallas Pain Questionnaire (among three others: the Roland Disability Questionnaire, the Quebec Back Pain Disability Scale and the Oswestry Low Back Pain Disability Questionnaire) “demonstrated strong qualities (content and construct validity, feasibility, linguistic adaptation and international use)” (para 4). The Dallas Pain Questionnaire is the functional assessment tool utilized in COMT and in COMT-RN. It includes questions about pain, activities of daily living, and psychosocial elements, and appears to be appropriate for patients reporting pain-related disability.

### **Care Planning**

In reading about pain and pain assessment, a theme discovered was that pain assessment by nurses tends to be inconsistent. Factors influencing the differences include administrative issues, such as “organizational factors operating within the sociopolitical environment of a hospital affect pain management practices and contribute to inadequate pain management” (Alley, 2001, p. 867); knowledge issues, such as “staff members and patients may have different knowledge bases about pain management and the skills needed to provide it, or they may hold common misconceptions related to the quality of pain management” (Hayes & Gordon, 2015, p. 330); as well as a study by Mooney and O’Brien, (2006), which reported pain management is not always adequately addressed for fear of causing opioid addiction; and other findings, such as “the reasons for not giving analgesics to patients with abdominal pain are often argued to be the result of a fear of masking the important initial symptoms, thus hindering appropriate diagnosis and treatment. However, this has been opposed in several studies” (Athlin, Carlsson, & Gunningberg, 2015, p. 744).

It was observed by this nursing educator that student nurses are prone to believing care planning is an exercise for school only. This may influence students' estimation of the importance of care planning in "the real world". Stott (2011) stated, "It was believed that a more concise, evidence-based and user-friendly system of care planning would help to reduce the time spent on documentation, thus improving patient care" (p. 33). Carr (1997) noted in pain assessment and care planning in a general hospital, that the nursing staff were not using measurable goals; 44% of the care plans did not mention psychosocial interventions or refer to the pain documented; and "interventions focused on analgesia and actions to relieve the physical cause of the pain" (p. 1073). The author further suggested the use of a pain assessment tool has the potential to educate nurses on care planning which reflects the multidimensional nature of pain. The fact this study was published nine years ago, suggests improvement in this area is still needed.

### **Nursing Education**

Several articles were reviewed about nursing education. Saifan, AbuRuz, and Masa'deh (2015) noted "a clear gap between what is taught in the classroom and what the student nurses experience in the clinical area" (p. 20). The authors continue to point out that theory-practice gaps, whether present because classroom and textbook instruction do not resemble real events, or because nursing theory can be abstract and interpreted in different ways, should not be too wide. To ameliorate this gap, they suggested theory learned in the classroom must be clear to students so they are prepared to carry concepts learned in school into their nursing practice. This theory-practice gap was also studied by Esmaeili, Cheraghi, Salsali, and Ghiyasvandian (2014), who noted students prefer the clinical setting to the classroom for learning behavioral skills and care management. A study by Kalb, O'Connor-Von, Brockway, Rierson, and Sendelbach (2015)

investigated the use of evidence-based teaching practice (EBTB) to “develop evidence-based assessment and evaluation practices” (p. 212). They concluded “the body of science in nursing education needs to be expanded to ensure that nurse educators can engage in EBTP to promote excellence in education” (p. 213). The use of the COMT-RN instrument in teaching pain assessment would be of value in achieving this goal.

### **Pain and Quality of Life**

Many of the articles reviewed for this project were chosen for their subject of nursing care delivery for pain management or quality of life issues for patients reporting pain. An analysis of the role of midlevel practitioners on pain and quality of life by, Hansen and Atayee (2012), noted, “Studies indicate a positive impact when specialized care is deferred to midlevel practitioners supported by oversight from physicians through collaborative practice protocols” (p. 388). As COMT-RN will be designed for implementation by nurse practitioners, this article had value in regard to this project. The work by Beltrutti, Lamberto, Barolat, Bruehi, Doleys, Krames, and... Melzack (2004) noted the importance of a psychosocial assessment of patients to improve outcomes. Musliu, Ibishi, and Hundozi (2013), studied the impact of depression on patients and noted it could result in decreased quality of life, could be a risk factor for chronic illnesses, and was the strongest predictor of health status decline. The authors recommend therapeutic treatment of non-physical symptoms to improve outcomes to reduce anxiety, depression, and impaired social function. COMT-RN is a tool that addresses this issue.

### **Psychosocial Issues**

COMT-RN uses concepts of the mind-body connection in assessing pain and managing patients experiencing pain. A study of the effectiveness of early intervention for workers with back injury by Schultz, Crook, Berkowitz, Milner, Meloche, and Lewis, (2008), noted “a wide

range of outcomes were experienced by workers whose injuries initially appeared similar. As a consequence, prognostic stratification of workers was considered important to this scientific inquiry of occupational disability” (p. 141). They further state, “educational approaches to remove the psychosocial barriers to recovery and enhance worker self-management of musculoskeletal pain, while innovative, have not yet fully addressed the impact of workplace organizational factors on RTW [return to work]” (p 141). COMT-RN is a useful tool in addressing psychosocial barriers to recovery. Hutten, Hermens, and Zilvold (2000) studied the use of a psychological assessment tool in patients with chronic low back pain and found “the level of persisting disability depends principally on measures in the psychosocial domain” (p. 485). They further concluded a patient’s ability to perform activities of daily living and maintain social roles is determined by the relationship between their physical limitations and their psychosocial needs, and outcomes can be managed toward this end.

## **DRAM**

The Distress Risk Assessment Method (DRAM) psychological assessment is comprised of two questionnaires-the Modified Somatic Perception Questionnaire (MSPQ) and the Modified Zung Depression Index (MZDI). Articles reviewed for research of this tool included a study by Daubs, Hung, Adams, Patel, Lawrence, Neese, and Brodke (2013) of the use of the DRAM to evaluate clinical factors that predict psychological distress in spinal disorder patients. They found the tool was 92% sensitive and 95% specific for predicting psychological distress. Another study of the DRAM by Abtahi, Brodke, Lawrence, Zhang, and Spiker (2015) in determining patient satisfaction and psychological distress, a phenomenon is not completely understood, found the DRAM measured a significant association between the two. These studies indicate the DRAM is an evidence-based tool appropriate for use in the clinical setting. Refer to Appendix B.

**Summary.** A summary of the systematic literature review indicates the articles about care planning, nursing education, pain, quality of life, psychosocial issues, and the DRAM demonstrate the need for further application of psychosocial factors in the treatment of pain and justify the need for study of systems like COMT-RN, suggesting gaps in the current literature and potential gaps in nursing research and science. As COMT-RN was designed for implementation by nurses, these articles have value to this project, as they provided background information on current research and gaps regarding these areas of study.

### **Project Plan and Evaluation**

#### **Risk Analysis**

To make a risk analysis of this project, a Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis was implemented to identify the strengths of this project, allow for planning to address weaknesses, understand opportunities that may add value to the project, and to be aware of threats. The strengths and weaknesses are the internal factors, and the opportunities and threats are the external factors (Zaccagnini & White, 2014). Driving and restraining forces were also examined to determine the project's sustainability. Finally, the stakeholders and project team were identified and a cost-benefit analysis presented.

#### **SWOT**

Strengths of this project include the literature support for an increased need to address patient pain in care planning. Studies that support this project include Ayed, Sayej, Harazneh, Fashafsheh, and Eqtait, 2015, who recommend incorporating palliative care into nursing education. They note nurses as well as other healthcare workers often feel poorly prepared "for their task in palliative care and are much in need of more expertise in the field of pain and symptom management, communication and dealing with ethical dilemmas [sic]" (p. 91). Slatyer,

Williams, and Michael, (2015) noted "...medical wards have been identified as areas of need where staff can lack awareness of patients' pain and subsequent treatment guidelines" (p. 230). Twigg, and Byrne (2015) state, "Health care providers are particularly critical with respect to pain judgments as their judgments inform diagnosis, assessment, treatment, and referral options" (p. 88-89). They note this can cause underestimating pain and that can interfere with treatment, so this "represents a vital area for research" (p. 89).

The venue where this study was accomplished is a baccalaureate nursing program whose Accreditation Commission for Education in Nursing (ACEN) accreditation includes standards this study supports. These include Standard 2.6: "Faculty (full and part-time) maintain expertise in their areas of responsibility, and their performance reflects scholarship and evidence-based teaching and clinical practices" (ACEN, 2016, p. 2); and "Standard 4.10 Students participate in clinical experiences that are evidence-based and reflect contemporary practice and nationally established patient health and safety goals" (ACEN, 2016, p. 4).

Some weaknesses identified included the observation that student nurses can be so interested in learning procedures they may lack focus on patient history, pain control, etc., and another observation was students are unfamiliar with in-depth care planning which includes clearly stated objectives and outcomes management. This is a weakness in the educational system; Romero-Hall (2015) wrote, "However, knowledge of pain management principles has been studied in both physicians and nurses, demonstrating an inadequate knowledge base" (p. 610), and "in other words, the importance of pain assessment and pain management often fails to be emphasized during the education of health care professionals" (p. 611). Romero-Hall found, "Nursing students' knowledge is influenced by multiple factors, including outdated and incorrect information from faculty, staff, and nursing curricula" (p. 612), and "Nursing faculty need to



critically review their curricula in the area of pain management. Research has found a need for a reexamination of the amount of time, depth, breadth, and methods used to teach students about pain and pain management” (p. 612). The study identified students’ knowledge of pain management principles. This information may be influential as a gap analysis to be used in future curricula design. It is also the hopes of this researcher that the use of COMT-RN will remedy any deficiencies or limitations in pain assessment practices, as it uses evidence-based, innovative methods for pain assessment and care planning.

An opportunity to enhance student learning and increase patient pain control was identified. Twigg and Byrne (2015) noted student nurses ascribed a significant decrease in the pain intensity and emotional distress ascribed to patients when pain behaviors were absent. This is consistent with work which suggests that pain behaviors are used to judge patient distress and that the absence of pain behaviors to visibly signal distress or functional impairment negatively influences perceptions of that individual (p. 94).

This suggests more comprehensive methods of pain assessment could result in less judgmental care and improved patient outcomes through collaborative care planning. Clinical faculty of students with instruction in COMT-RN can comment on perceived student awareness of patient pain and students’ management of their patients’ pain. This could even be a valuable reflection for clinical students as DSN students are required to journal reflections on their clinical experiences.

A threat identified was that clinical experiences (facilities/hospitals) do not currently support the use of COMT-RN. Another identified possible risk was that students may have felt uncomfortable in participating fully in the study. Some possibilities included feeling

embarrassment if they found the pre-test indicated a knowledge deficit about the subject matter, or they did not want to complete the study after all once they started, or they may have felt pressured to participate for any reason. To ameliorate these possibilities, the students received the pre- and post-test test materials along with an envelope in which they sealed their completed forms. At the end of the program, these envelopes were collected by having the students deposit the sealed envelopes in a container to ensure their anonymity. An alphanumeric designator was assigned to the pre- and post-tests for sorting purposes, but had no identifying information on them.

### **Driving and Restraining Forces**

The driving forces for the project included the researcher's knowledge of the subject – pain, assessment, and COMT-RN, and experience as a registered nurse (RN) who has cared for thousands of patients. Restraining forces included the complexity of the material and the interest level of the students. Participants were pre-licensure student nurses who may have found this material challenging and of minimal significance to them.

### **Resources and Sustainability**

A successful implementation of a new process “requires both a receptive climate and a good fit between the innovation and the intended adopter's needs” (Titch, 2010, para.1). The setting for this project was a nursing college, where research is welcomed and study of nursing subjects is encouraged. The innovative aspect of COMT-RN to nursing is applicable to all levels of nursing care. Implementation of COMT-RN to nursing practice is expected to improve care planning and patient outcomes; if this higher level of care planning were to become the standard, it could be taught as a part of the regular nursing curriculum, with the possibility of dissemination to other schools and care environments. However, the assessment methodology

could be groundbreaking in its potential for patient outcome improvement. Like many challenging subjects, once mastered, the material is no more complex than any other nursing subject. It will advance the profession by adding tools for improved patient care to all levels of RN caregivers.

### **Feasibility and Risks**

Additional safeguards incorporated to protect the rights/welfare of participants likely to be vulnerable to coercion/undue influence included explaining to students that if they had no interest in the study, no time to participate, were too tired, had studying to do, or any other reason, it was best for them not to participate. This gave students some built-in rationale for not participating if they felt pressured to participate. It was reiterated that the study was not a part of the college of nursing curricula, any course they were taking, and would not benefit them in their coursework or future NCLEX success. Another identified possible risk was that students might have felt uncomfortable in participating fully in the study. Some possibilities included that they may have felt embarrassed if they found the pre-test indicated a knowledge deficit about the subject matter, or they did not want to complete the study after all once they started, or they had test anxiety. To ameliorate these possibilities, the researcher explained the pre-and post-tests were a device to determine the effectiveness of an educational module, and they were not expected to have any knowledge of the program to come; further, they may simply choose not to answer the questions in the pre- and/or post-test, and no one would know because at the end of the program, these envelopes were collected by having the students deposit the sealed envelopes in a container to ensure anonymity of the students. An alphanumeric designator was assigned to the pre- and post-tests for sorting purposes, but had no identifying information on them about the

participant. It was also explained that the research needed honest answers, and if the post-test indicates low or no learning, those data were necessary as well.

### **Stakeholders and Project Team**

As the project need was identified as a need to gather data on pain knowledge, care planning, and COMT-RN as a methodology to improve these, the primary stakeholders for this project were the student nurses. The project team for this study included the student participants, this researcher's clinical mentor, Dr. Diana Kostrzewski, Regis chair, Dr. Cris Finn, the physician COMT consultant, Dr. Scott Primack, and the DNP student.

### **Cost-Benefit Analysis**

To conduct the study, there was only the need for classroom/conference room space, tables, chairs, and audiovisual equipment for the education module. The college where this study took place made these available. There was also the need to print out the pre- and post-tests; this was very easy and of minimal cost, an average of 10 cents per page including nine pages of handouts per student participant. The time spent in additional education about improved methods of pain assessment would result in improved patient outcomes through better nursing care and increased confidence by new nurses in managing their patients' pain. Additionally, the benefit to the college of nursing is to participate in research that could advance professional nursing by promoting research and increasing the evidence base for nursing practice. See Appendix C, Budget and Resources.

### **Mission, Vision, and Goals**

The mission of this project was to determine if a brief education about improved pain identification could improve care planning. This mission aligns with the philosophy of the college of nursing, which "flows from the mission of the school and supports the concepts of

clinical competence, excellence in education, holistic care, professionalism, evidence-based practice, and lifelong learning” (DSN, n.d., para.10).

The vision of this researcher was: at its conclusion, the project would demonstrate the material was perceived to be of value to student nurses in their pain assessment and care planning. This vision aligns with the mission of the college where the research took place, which is “to prepare excellent health care providers and leaders to transform the lives of persons and communities through innovative education and health care” (Denver School of Nursing, n.d., para. 2). Another vision is that COMT-RN becomes the standard for comprehensive pain assessment and care planning for registered nurses everywhere. Another vision includes the possibility for example, the college where the research took place were to want to adopt it, the education module would be incorporated into a lesson plan. The goals of this Capstone Project included developing and implementing evidence based, financially favorable, and sustainable systems aligned with the college of nursing’s mission and vision.

### **Logic Model**

The conceptual model of this project proposal was adapted from Zaccagnini and White’s (2014) Logic Model Template and from the Theory Approach Model from the W.K. Kellogg Foundation Logic Model Development Guide (2004) (Appendix D). After reviewing several approaches to logic models, it was determined a Theory Approach Model best suited this project to evaluate if education about COMT-RN could increase the knowledge of patient pain identification and improve care planning by student nurses. The Theory Approach Model addresses advanced practice nursing outcome measures, including:

Systematic investigation of a practice issue; the outcome is a solution to a practice problem that usually involves systems change and is reproducible in other systems; is

limited to a place and time; is based in theory and literature; and uses rigorous methods that are appropriate to the scope of the problem (Edwardson, 2009, as cited in Zaccagnini & White, 2014, p. 421)

First, the project problem was stated; then, the problem and assumptions were identified. The project problem was stated as, quantifying and measuring subjective issues such as pain can be difficult for a nurse to standardize for effective care planning. An objective standardized tool, evidence-based, nurse-driven, and comprehensive would be valuable for the nurse to develop and manage an effective care plan that will influence a patient's recovery to optimize physical, functional, and psychological status as well as quality of life (Appendix D).

The logic model is a conceptual diagram (Appendix E) of the project question. It describes and connects the sequence of the project's plan and its intended results, appearing in the order in which they occurred (Kellogg Foundation, 2004). Next, factors that influence the outcome were identified as the inputs, which for this project were student nurses. At that juncture, the activities that took place were identified, including the pre-test, which assessed the students' baseline knowledge of pain assessment, assessment of psychosocial factors, and the use of an evidence-based practice tool to assess pain. The students then engaged in a short educational presentation and learned about the use of COMT-RN and how it can be used in pain assessment and care planning. Students then took a post-test to measure their perceptions of their improved ability in pain assessment and care planning. The outputs were the results of the program activities – in this case, the student nurses who participated in the study. Outcomes are changes that were projected to occur; outcomes for this project included the students' perceptions of their improved pain identification and improved care planning.

Finally, impacts of the project were presented, including students' perceptions that the use of COMT-RN will result in improved patient outcomes in the form of optimized physical, functional, and psychological status and quality of life. The study's plan from the writing of the proposal to the final submission of the paper for publication had a timeline of one year (see Appendix G Timeline).

### **Subject Population and Recruitment**

Students were recruited via announcement in their classroom, utilizing the Participant Information Sheet (Appendix F). The project commenced in the classroom after their regular class ended, and they were then invited to voluntarily participate. The Participant Information Sheet was distributed by the researcher and questions about participation were answered. To ensure voluntary participation, it was reiterated verbally that participation and completion of the activities were voluntary and their pre- and post-tests had no identifying information.

### **Methodology**

#### **Outcome Measures**

This project was a quasi-experimental pre-test-post-test design. The project was internal to the college of nursing. The primary outcome measures for the project included the difference between the pre-test and the post-test to determine the immediate impact of the COMT-RN education. The tests had a Likert scale design. Refer to Appendix H for the pre-test and to Appendix I for the post-test. The content of the tests were created based on the COMT-RN education module content.

Validity data for each of these tools came from the analysis of the physician, Scott Primack, Doctor of Osteopathy (D.O.), who developed the software entitled Comprehensive Outcomes Management Technologies, LLC, who has stated he is in favor of the use of this tool

by nurses and providers and is the subject matter expert for validity (Appendix J). Dr. Primack has published case studies about the effectiveness of COMT, and most recently co-authored an article about COMT in the Spring 2017 *Journal of Osteopathic Physiatry* (Primack, Brunworth, Hammes, & Weitzenkamp, 2017).

Reliability data was measured using Cronbach's alpha, which measures the internal consistency of the instrument (Polit, 2010). Tavakol and Dennick (2011) note, "the reliability of a test reveals the effect of measurement error on the observed score of a student cohort rather than on an individual student" (p. 53), making this reliability measure suitable for the instruments utilized. The alpha index of reliability for the data collected in this study is .674; as the normal range of values for this measure is between .00 and 1.00, the higher the value indicates better internal consistency (Polit, 2010).

### **Study Variables, Design, and Data Collection**

The independent variable was the delivery of the education module to the study population. The dependent variable was a significant increase in pain identification and care planning as evidenced by higher post-test scores than pre-test scores. Extraneous variables included student participation willingness and subject matter interest. Three cohorts of students in the sixth quarter of the nursing program were identified by their instructor as having time to participate, and time was allotted in each class for this project.

The study design was as follows: The students were recruited by asking for voluntary participation when they were in class. The researcher offered the consent form / Participant Information Form (Appendix F) to voluntary participants. The pre-test was distributed and students were allotted sufficient time to complete them (Appendix H). Printed educational materials (Appendix B) were distributed and explained. The students were then shown the



educational module, a PowerPoint slide presentation presented by this researcher (Appendix K). After any discussion engendered by the educational module, the students completed a post-test (Appendix I). All pre-tests distributed were the same, and all post-tests distributed were the same. After the students completed their post-tests, they were asked to fold them and place them in the envelope provided, seal the envelopes, and place them in the collection container on their way out of the classroom. The total time for this program was approximately one hour.

The COMT-RN education module included 11 slides that discussed the problem of quantifying subjective issues such as pain, introduced an overview of the purpose of COMT-RN, discussed the connection between the mind and body, and demonstrated how COMT-RN works in care planning. The printed materials distributed included the DRAM and Dallas Pain Questionnaire (DPQ) assessments plus scoring schema, and students were invited to complete the assessments for themselves, recalling a time they were ill or injured, or for a hypothetical or past patient, imagining how that patient might have answered. Students were told that all materials (except for the pre-tests, post-tests, and envelope) were theirs to write on and keep if they desired.

### **Sample**

The scope of this project was small, with a convenience sample of 82 students. It was determined only baccalaureate student nurses in the second half of the program could participate, as students in earlier sections of the program did not yet have an adequate amount of nursing education and patient care experience to understand the subject matter of the project.

### **Official Site Approval**

Outside approval was sought and received from the college of nursing and was granted by the Dean of Nursing Programs (Appendix L, Agency Approval Letter). No separate

Institutional Review Board (IRB) or Research Council at the site approved the project. IRB approval was sought, and approval granted on January 26, 2017 (Appendix M, Regis University Institutional Review Board Approval Letter). This research was exempt level from the requirements for IRB approval, as the data collected did not contain individually identifiable information. Additionally, the principal investigator and DNP Capstone Chair both completed CITI training (see Appendix N).

### **Protection of Human Subjects**

Data was entered into SPSS on a password protected computer kept locked in the office. All study materials were kept in a locked cabinet, and results and the analysis were kept in a password-protected computer. Each student was assigned an alpha-numeric number to protect their identity. Envelopes containing pre-and post-tests were numbered as A-1, A-2, A-3, etc. for the first group of students, B-1, B-2, B-3, etc. for the second group, and so on, just for tracking of each group who participated. The pre- and post-test were distributed together to each student along with an unmarked envelope. The students were given verbal instructions to complete the pre-test before the educational presentation; after the educational presentation, the students were given verbal instructions to complete the post-test; and then to place both pre-and post-tests in the envelope and seal it. The sealed envelopes were collected at the end of the presentation by having the students drop their envelopes into a receptacle (which was placed at the back of the room) on their way out of the classroom.

This study did not involve the protected data of vulnerable populations. No participant identifier was required that would have compromised an individual's privacy or confidentiality. No conflict of interest occurred in this study. The students were in no way

pressured into participation and no grades were affected in any way. Proprietary interests in this research study did not negatively affect the rights and welfare of the study students (Fiore, 2014).

Protections of participants were ensured by the anonymity of the pre-tests and post-tests (the only items/data collected from students). No participant's name or other identifying information was on any materials; this way, any student who did not wish to complete either or both pre- or post-test(s) was not identifiable. Another protection was that all students were in the sixth quarter of the program; none of the students were or will be students of the researcher, which was noted to reassure students to understand there could be no retaliation against nonparticipants or preferential treatment for their choice to participate in this research. Non-students, such as faculty or staff, and students from quarters one through three, were not invited or allowed to participate in this research. Whether or not they chose to participate in the research, all students in each group were invited to partake of the refreshments provided; this ensured no coercion or incentive to participate was made, other than their inclusion as a contributor to nursing research.

### **Findings and Results**

Data were entered and analyzed utilizing SPSS version 21. Demographic data was analyzed for descriptive statistics including mean, median, mode, and range. Independent t-tests were performed for comparison of mean data between groups.

The data analysis began with the calculation of the paired samples statistics score, which represents the aggregate pre-test and post-test scores. The paired samples t-test evaluated the differences in mean between the scores of the pre- and post-test. Table 3 illustrates the paired sample statistics, and Table 4 expresses the paired samples correlations.

A two-tailed t test for independent groups was used to test for differences in pre-and post-test scores. Table 5 depicts the results of the paired samples test. The t test revealed the mean pre-test score (m=31.1098) was significantly different from the mean post-test score (m=39.8902),  $t = -20.867$ ,  $p = .000$ .

Table 3. Paired Samples Statistics

| Paired Samples Statistics |          |         |    |                |                 |
|---------------------------|----------|---------|----|----------------|-----------------|
|                           |          | Mean    | N  | Std. Deviation | Std. Error Mean |
| Pair 1                    | Pretest  | 31.1098 | 82 | 3.87460        | .42788          |
|                           | Posttest | 39.8902 | 82 | .52130         | .05757          |

Table 4. Paired Samples Correlations

| Paired Samples Correlations |                    |    |             |      |
|-----------------------------|--------------------|----|-------------|------|
|                             |                    | N  | Correlation | Sig. |
| Pair 1                      | Pretest & Posttest | 82 | .189        | .088 |

The histograms (see Figures 1 and 2) display the scores before and after the education module. At 10 questions with 40 potential answers, there were 3,280 potential scores for each test. For the pre-test (Figure 1), scores ranged from 20 (out of a possible score of 40) to 40; in the post test (Figure 2), scores ranged from 37 to 40, with 78 students scoring 40. The mean score (for comparison) of the pre-test is 31.11; the mean score of the post test is 39.89. The conclusion is the intervention (the education module) was effective in improving the scores.

Table 5. Paired Samples Test

| Paired Samples Test |                    |                    |                |                 |   |          |         |    |                 |
|---------------------|--------------------|--------------------|----------------|-----------------|---|----------|---------|----|-----------------|
|                     |                    | Paired Differences |                |                 |   |          | t       | df | Sig. (2-tailed) |
|                     |                    | Mean               | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference |          |         |    |                 |
|                     |                    |                    |                |                 | Lower                                     | Upper    |         |    |                 |
| Pair 1              | Pretest - Posttest | -8.78049           | 3.81040        | .42079          | -9.61772                                  | -7.94325 | -20.867 | 81 | .000            |

## Discussion

### Evidence-Based Practice Questions

Advanced leadership education benefits from this project from its use of innovation. Nurse leaders should be able to identify clinical problems and be able to lead improvement change (Kliger, Lacey, Olney, Cox, & O'Neil, 2010). This project demonstrated a way to effect change in how nursing students can change their patient care regarding pain and care planning for patients with pain.

The data collected in this study demonstrated the educational module significantly increased pain assessment knowledge in the study participants. The finding that almost every post-test score showed complete understanding of the student's perception of their ability to

identify patient pain, especially when compared to their pre-test scores, indicates the educational module was effective in teaching the value of using COMT-RN in patient care planning.

### **Theoretical Support**

The project supports the nursing theory of Roy's Adaptation Model of Nursing by incorporating a holistic approach to patient pain identification and care planning. As noted by Romero-Hall (2015):

It is very important for nurses to have a clear understanding of the patient's pain experience and of management strategies. However, a review of the nursing literature shows that one of the main barriers to proper pain management practice is lack of knowledge. Nursing schools are in a unique position to address the gap in pain management knowledge by facilitating the acquisition and use of knowledge by the next generation of nurses (para. 1).

Also noted in this study was anecdotal evidence for support of Bandura's theory of Self-Efficacy, in which the author identified sources that influence a patient's "recovery, or optimization of physical, functional and psychological status and quality of life" (as cited in Connolly, Aitken, & Tower, 2014, p. 715). Bandura posited self-efficacy is "the belief in one's capabilities to organize and execute the courses of action required to manage prospective situations" (1994, p. 2). Incorporating nursing interventions that reinforce and encourage a patient's belief in their capabilities such as these sources described by Bandura with the COMT-RN methodologies may lead to improved outcomes related to pain.

### **Limitations**

Limitations that have a potential impact on the quality of findings and the ability to effectively answer research questions and/or hypotheses include the following three factors:

1. The failure to use a probability sampling technique. This significantly limits the ability to make broader generalizations from the results, so it is not possible to determine conclusions about the impact on patient care from this project. However, the degree to which this reduces the quality of findings is a matter of debate. Future research would encompass a different approach to sampling, perhaps using more than one college of nursing to participate.

2. Small sample size. Due to the timeline, only one course's instructor had availability for the project, so only a small number of students participated. Any future research would have a more controllable timeline to include a greater number of participants.

3. The differences in wording between the pre- and post-tests. This may have been a factor in the results; the pre-tests used wording such as "I use an evidence-based tool to assess psychosocial factors that could affect my patients' outcomes", and the post-test used wording such as, "It is important to use an evidence-based tool to assess psychosocial factors that could affect my patients' outcomes. Future research would use a different type of pre-test-post-test design, such as a Likert scale of how important each factor was perceived by the participant, and both pre- and post-tests would be the same.

### **Contributions to Nursing**

This research contributes to nursing by developing the strengths of the student nurse through increased knowledge and competence supported by evidence-based practice. It also contributes to nursing research by making use of tools utilized in other areas of patient care, such as medicine and psychology. Additionally, it explores the tool for use in nursing practice. Currently, in the assessment of pain, a lack of knowledge about pain management has been identified as the most significant barrier to effective pain management (Clarke, French, Bilodeau, Capasso... & Empoliti, 1996). These authors also noted other barriers to pain management were

related to patient reluctance to report pain and inadequate nursing education about pain.

Plaisance and Logan (2006) reported that inadequate pain treatment was related to nurses' failure to appropriately assess pain; they also note this could be a result of "the limited attention given to pain management in nursing curricula" (para. 1). Results of this project indicate a possible area of opportunity to improve pain identification and knowledge in nursing education.

### **Recommendations for Future Study**

Nurse-driven interventions such as the use of COMT-RN presented in this project guide the implementation of health policy. Teaching student nurses how to improve pain identification and care planning can lead to significant change in quality improvement and patient advocacy. Health care policy "creates a framework that can facilitate or impede the delivery of health care services or the ability of a provider to engage in practice to address health care needs" (AACN, 2006, p. 13). Modification of an evidenced-based practice pain assessment tool for use by nurses provided the framework for improving planning and patient advocacy.

More in-depth pain assessment education is recommended, possibly utilizing the COMT-RN education as studied in this project.

### **Conclusion**

The research into COMT-RN as a pain assessment and care planning tool could yield valuable information that could add to the research evidence base. It is anticipated the use of COMT-RN will show improved patient outcomes in pain control, and if it does, more research will be warranted. The desired result of this study demonstrated that student nurses' perceptions of the value of using this tool for improved pain assessment and care planning increased. This improved ability to measure qualitative responses, affect patient planning, and predict results to improve patients' outcomes will positively impact their patients' quality of life.





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Figure 1. Pre-Test Histogram

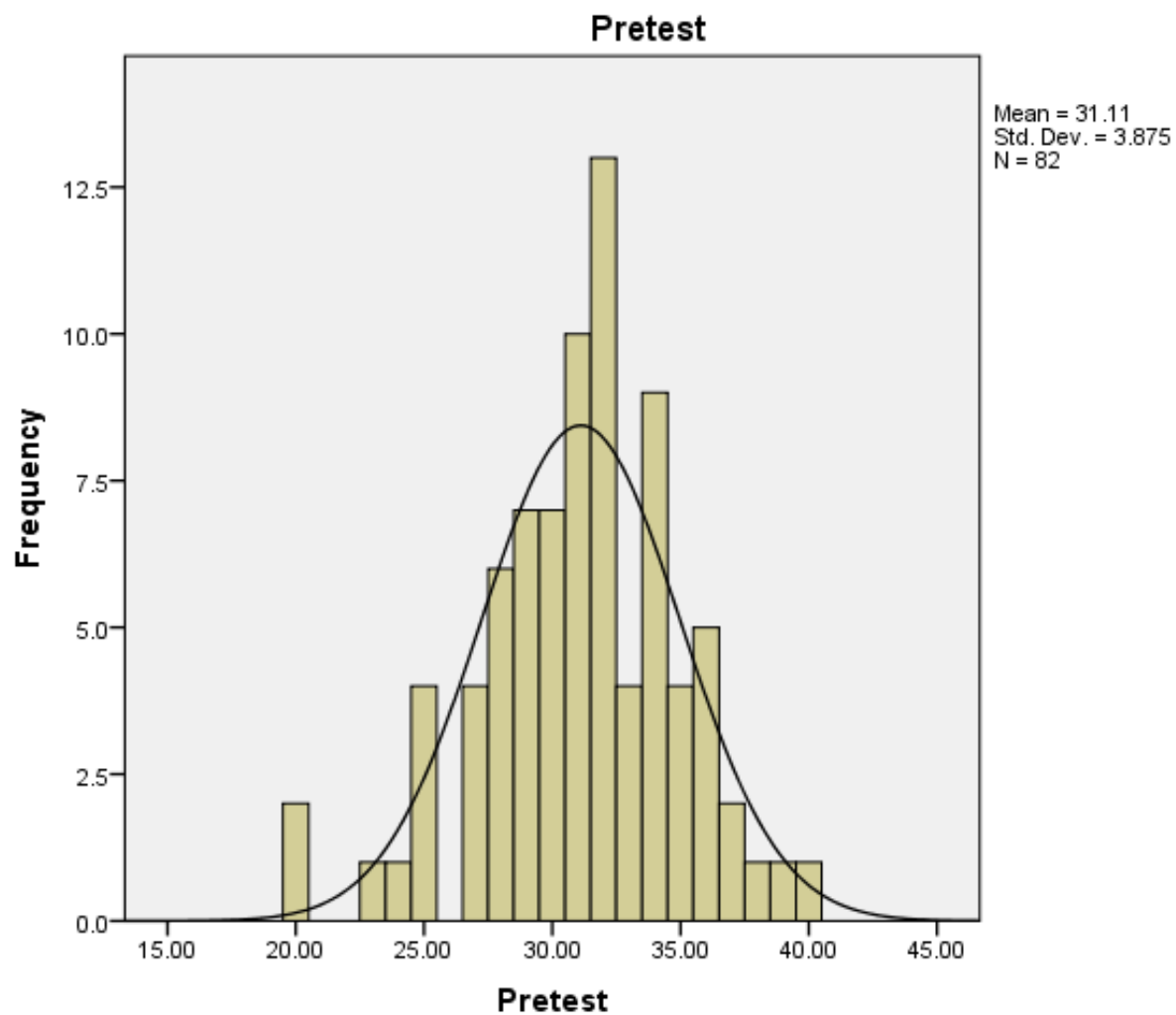
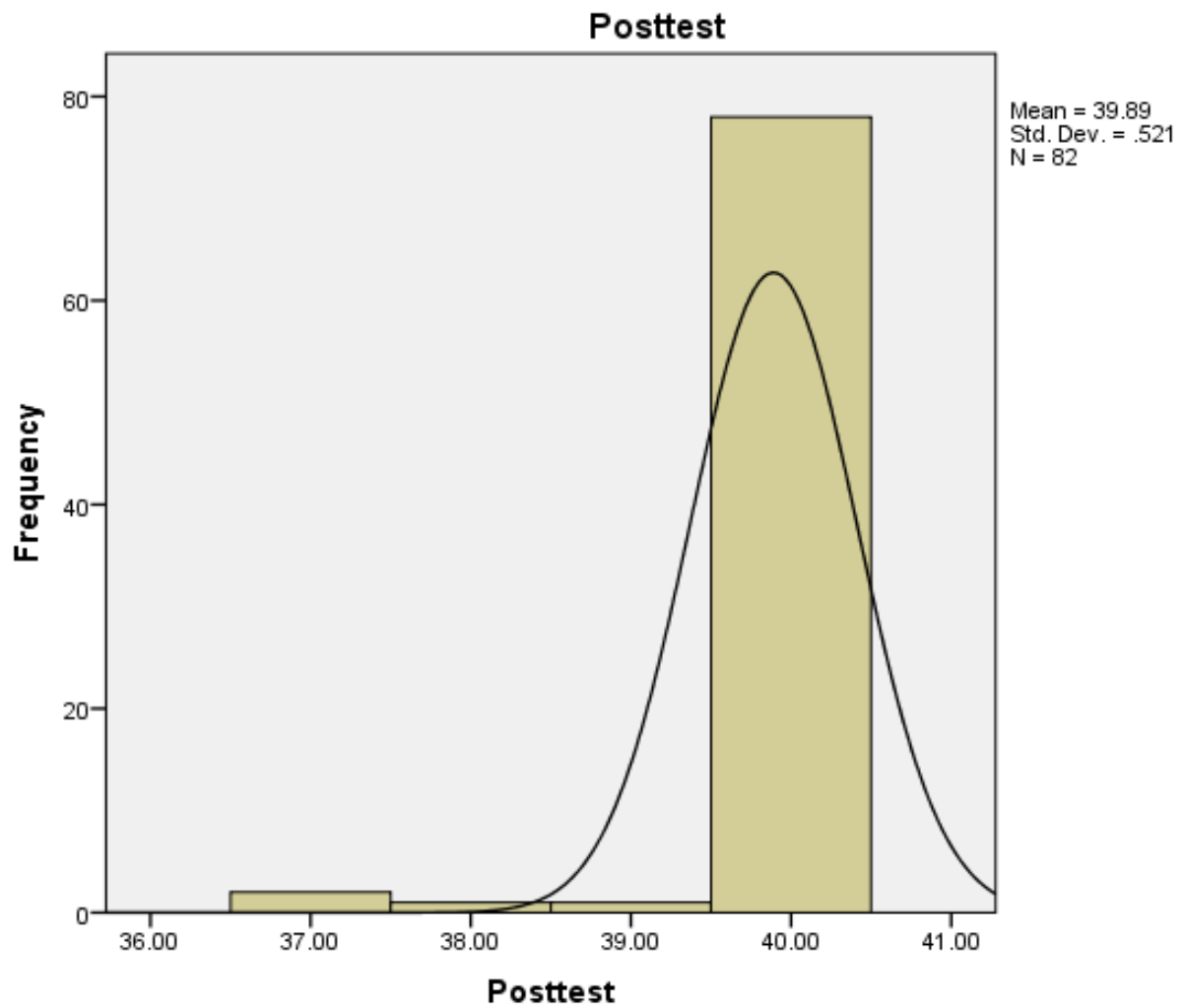




Figure 2. Post-Test Histogram



Appendix A. Literature Review Sample Table

|   |  |
|---|--|
| Article/Journal                                 | Accuracy of the Modified Somatic Perception Questionnaire and Pain Disability Index in the Detection of Malingered Pain-Related Disability in Chronic Pain   |
| Author/Year                                     | Kevin J. Bianchini, Luis E. Aguerrevere, Brian J. Guise, Jonathan S. Ord, Joseph L. Etherton, John E. Meyers, R. Denis Soignier, Kevin W. Greve, Kelly L. Curtis & Joy Bui (2014).   |
| Database/Keywords                               | EBSCO Host /EBP  |
| Research Design                                 | criterion groups validation design (retrospective cohort of patients with chronic pain) with a simulator group   |
| Level of Evidence                               | Level V  |
| Study Aim/Purpose                               | To examine the classification accuracy of the MSPQ and PDI in detecting malingered pain-related disability in a clinical sample of chronic pain patients seen for psychological evaluation   |
| Population/Sample size<br>Criteria / Power      | 426; patients with chronic pain, n = 328) with a simulator group (college students, n = 98)  |
| Methods/Study<br>Appraisal<br>Synthesis Methods | Clinic cases were obtained from the records of a series of 772 referrals for psychological pain evaluation at a clinical psychology practice in the Southeastern United States from 1998 through 2003.   |
| Study tool/instrument<br>validity/reliability   | The WMT scores are recorded in increments of 2.5% so scores between 80 and 78.5 and between 72.5 and 70 are not possible. –PP = Negative Predictive Power, the minimum probability that a negative score was produced by a non-malingering case assuming a malingering base rate of .35; +PP = Positive Predictive Power, the minimum probability that a positive score was produced by a malingering case assuming a malingering base rate of .35   |
| Primary Outcome<br>Measures/Results             | Extreme scores reflect intentional exaggeration—the mean scores of the malingering groups in each of these studies are compellingly similar for both the MSPQ and PDI. The MSPQ and PDI both have the capacity to differentiate malingering patients from non-malingering patients with a high degree of accuracy, although the MSPQ is more effective overall. The larger, more well defined sample in this study allows for the use of these two instruments as indicators in a comprehensive diagnostic system for malingering.   |
| Conclusions/<br>Implications                    | Absent other clinical evidence of psychological complication, low PDI and MSPQ scores reflect minimal psychosocial complication that ought not to interfere with clinical pain management and rehabilitation. Higher scores indicate at least the possibility of psychological complication. While high scores reflect an increased probability of malingering, they are insufficient for a diagnosis of MPRD no matter how extreme.   |
| Strengths/ Limitations                          | One limitation is that the current sample may not be representative of all pain patients. This sample was composed of patients with chronic pain (patients who have not recovered 6 months after the injury), a type of pain episode that has been linked to emotional distress. Thus, the cutoffs related to this study might not generalize to patients with acute or recurrent pain conditions. This study did not specifically examine factors that impact these scales at the clinical level—below scores associated with malingering. Finally, it is also important to note that because of the conservative nature of the current paper’s methodology, there is a possibility that some malingerers will go undetected at lower scores (i.e., there will be false negatives). |
| Funding Source                                  | Not addressed.   |

Appendix B. Distress and Risk Assessment Method (DRAM)

## Distress and Risk Assessment Method (DRAM)

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Source: Main C, Wood P, Hollis S, et al. The Distress and Risk Assessment Method. A Simple patient classification to identify distress and evaluate risk of poor outcome. *Spine* 1992; 17:42-52.

The Distress and Risk Assessment Method (DRAM) is a simple and straightforward psychological assessment method for pain problems. The DRAM is designed as no more than a first-stage screening procedure, whether as a confirmation of clinical impression, or to alert the clinician that a more comprehensive psychological or psychophysiological assessment is indicated.

### Scoring Instructions

The scoring schemas for the two questionnaires are provided on the page following each questionnaire.

### Interpretation of Scores

The suggested cut-offs

|                         |                                  |
|-------------------------|----------------------------------|
| Normal                  | modified Zung <17                |
| At Risk                 | modified Zung 17-33 and MSPQ <12 |
| Distressed Depressive   | modified Zung >33                |
| Distressed Somatic MSPQ | modified Zung 17-33 and MSPQ >12 |

## Modified Somatic Perceptions Questionnaire

Please describe how you have felt during the PAST WEEK by marking a check mark (✓) in the appropriate box. Please answer all questions. Do not think too long before answering.

|   | Not at all | A little, slightly | A great deal,<br>quite a bit | Extremely,<br>could not have<br>been worse |
|---|------------|--------------------|------------------------------|--|
| Heart rate increase                       |            |                    |                              |  |
| Feeling hot all over                      |            |                    |                              |  |
| Sweating all over                         |            |                    |                              |  |
| Sweating in a particular part of the body |            |                    |                              |  |
| Pulse in neck                             |            |                    |                              |  |
| Pounding in head                          |            |                    |                              |  |
| Dizziness                                 |            |                    |                              |  |
| Blurring of vision                        |            |                    |                              |  |
| Feeling faint                             |            |                    |                              |  |
| Everything appearing unreal               |            |                    |                              |  |
| Nausea                                    |            |                    |                              |  |
| Butterflies in stomach                    |            |                    |                              |  |
| Pain or ache in stomach                   |            |                    |                              |  |
| Stomach churning                          |            |                    |                              |  |
| Desire to pass water                      |            |                    |                              |  |
| Mouth becoming dry                        |            |                    |                              |  |
| Difficulty swallowing                     |            |                    |                              |  |
| Muscles in neck aching                    |            |                    |                              |  |
| Legs feeling weak                         |            |                    |                              |  |
| Muscles twitching or jumping              |            |                    |                              |  |
| Tense feeling across forehead             |            |                    |                              |  |
| Tense feeling in jaw muscles              |            |                    |                              |  |

## Modified Somatic Perceptions Questionnaire Scoring Schema

|   | Not at all | A little, slightly | A great deal,<br>quite a bit | Extremely,<br>could not have<br>been worse |
|---|------------|--------------------|------------------------------|--|
| Heart rate increase                       |            |                    |                              |  |
| Feeling hot all over                      | 0          | 1                  | 2                            | 3  |
| Sweating all over                         | 0          | 1                  | 2                            | 3  |
| Sweating in a particular part of the body |            |                    |                              |  |
| Pulse in neck                             |            |                    |                              |  |
| Pounding in head                          |            |                    |                              |  |
| Dizziness                                 | 0          | 1                  | 2                            | 3  |
| Blurring of vision                        | 0          | 1                  | 2                            | 3  |
| Feeling faint                             | 0          | 1                  | 2                            | 3  |
| Everything appearing unreal               |            |                    |                              |  |
| Nausea                                    | 0          | 1                  | 2                            | 3  |
| Butterflies in stomach                    |            |                    |                              |  |
| Pain or ache in stomach                   | 0          | 1                  | 2                            | 3  |
| Stomach churning                          | 0          | 1                  | 2                            | 3  |
| Desire to pass water                      |            |                    |                              |  |
| Mouth becoming dry                        | 0          | 1                  | 2                            | 3  |
| Difficulty swallowing                     |            |                    |                              |  |
| Muscles in neck aching                    | 0          | 1                  | 2                            | 3  |
| Legs feeling weak                         | 0          | 1                  | 2                            | 3  |
| Muscles twitching or jumping              | 0          | 1                  | 2                            | 3  |
| Tense feeling across forehead             | 0          | 1                  | 2                            | 3  |
| Tense feeling in jaw muscles              |            |                    |                              |  |

## Modified Zung Depression Index

Please indicate for each of these questions which answer best describes how you have been feeling recently.

|  | Rarely or<br>none of the<br>time (less<br>than 1 day<br>per week) | Some or<br>little of the<br>time (1-2<br>days per<br>week) | A moderate<br>amount of<br>time (3-4<br>days per<br>week) | Most of the<br>time (5-7<br>days per<br>week) |
|--|---|--|---|---|
| 1. I feel downhearted and sad                                |   |  |   |   |
| 2. Morning is when I feel best                               |   |  |   |   |
| 3. I have crying spells or feel like it                      |   |  |   |   |
| 4. I have trouble getting to sleep at night                  |   |  |   |   |
| 5. I feel that nobody cares                                  |   |  |   |   |
| 6. I eat as much as I used to                                |   |  |   |   |
| 7. I still enjoy sex   |   |  |   |   |
| 8. I notice I am losing weight                               |   |  |   |   |
| 9. I have trouble with constipation                          |   |  |   |   |
| 10. My heart beats faster than usual                         |   |  |   |   |
| 11. I get tired for no reason                                |   |  |   |   |
| 12. My mind is as clear as it used to be                     |   |  |   |   |
| 13. I tend to wake up too early                              |   |  |   |   |
| 14. I find it easy to do the things I used to                |   |  |   |   |
| 15. I am restless and can't keep still                       |   |  |   |   |
| 16. I feel hopeful about the future                          |   |  |   |   |
| 17. I am more irritable than usual                           |   |  |   |   |
| 18. I find it easy to make a decision                        |   |  |   |   |
| 19. I feel quite guilty                                      |   |  |   |   |
| 20. I feel that I am useful or needed                        |   |  |   |   |
| 21. My life is pretty full                                   |   |  |   |   |
| 22. I feel that others would be better off if I<br>were dead |   |  |   |   |
| 23. I am still able to enjoy the things I used<br>to         |   |  |   |   |

## Modified Zung Depression Index Scoring Schema

Please indicate for each of these questions which answer best describes how you have been feeling recently.

|  | Rarely or<br>none of the<br>time (less<br>than 1 day<br>per week) | Some or little<br>of the time (1-<br>2 days per<br>week) | A moderate<br>amount of<br>time (3-4<br>days per<br>week) | Most of the<br>time (5-7<br>days per<br>week) |
|--|---|--|---|---|
| 1. I feel downhearted and sad                                | 0   | 1  | 2   | 3   |
| 2. Morning is when I feel best                               | 3   | 2  | 1   | 0   |
| 3. I have crying spells or feel like it                      | 0   | 1  | 2   | 3   |
| 4. I have trouble getting to sleep at night                  | 0   | 1  | 2   | 3   |
| 5. I feel that nobody cares                                  | 0   | 1  | 2   | 3   |
| 6. I eat as much as I used to                                | 3   | 2  | 1   | 0   |
| 7. I still enjoy sex   | 3   | 2  | 1   | 0   |
| 8. I notice I am losing weight                               | 0   | 1  | 2   | 3   |
| 9. I have trouble with constipation                          | 0   | 1  | 2   | 3   |
| 10. My heart beats faster than usual                         | 0   | 1  | 2   | 3   |
| 11. I get tired for no reason                                | 0   | 1  | 2   | 3   |
| 12. My mind is as clear as it used to be                     | 3   | 2  | 1   | 0   |
| 13. I tend to wake up too early                              | 0   | 1  | 2   | 3   |
| 14. I find it easy to do the things I used to                | 3   | 2  | 1   | 0   |
| 15. I am restless and can't keep still                       | 0   | 1  | 2   | 3   |
| 16. I feel hopeful about the future                          | 3   | 2  | 1   | 0   |
| 17. I am more irritable than usual                           | 0   | 1  | 2   | 3   |
| 18. I find it easy to make a decision                        | 3   | 2  | 1   | 0   |
| 19. I feel quite guilty                                      | 0   | 1  | 2   | 3   |
| 20. I feel that I am useful or needed                        | 3   | 2  | 1   | 0   |
| 21. My life is pretty full                                   | 3   | 2  | 1   | 0   |
| 22. I feel that others would be better off if I<br>were dead | 0   | 1  | 2   | 3   |
| 23. I am still able to enjoy the things I used to            | 3   | 2  | 1   | 0   |

## DALLAS PAIN QUESTIONNAIRE

Please read: This questionnaire has been designed to give your health care provider information as to how your pain affects your daily activities. Be sure that these are your answers. Do not ask someone else to complete this questionnaire for you. Please mark an "X" along the line that expresses your thoughts from 0-100 in each section.

### Section I: Pain and Intensity

To what degree do you rely on pain medications or pain relieving substances for you to be comfortable?

None \_\_\_\_\_ Some \_\_\_\_\_ All the time \_\_\_\_\_  
0% ( \_\_\_\_\_ ) 100%

### Section II: Personal Care

How much does pain interfere with your personal care (getting out of bed, teeth brushing, dressing, etc)?

None (no pain) \_\_\_\_\_ Some \_\_\_\_\_ I can't get out of bed \_\_\_\_\_  
0% ( \_\_\_\_\_ ) 100%

### Section III: Lifting

How much limitation do you notice in lifting?

None \_\_\_\_\_ Some \_\_\_\_\_ I can't lift anything \_\_\_\_\_  
0% ( \_\_\_\_\_ ) 100%

### Section IV: Walking

Compared to how far you could walk before your injury or back trouble, how much does pain restrict walking now?

The same \_\_\_\_\_ Almost the same \_\_\_\_\_ Very little \_\_\_\_\_ I cannot walk \_\_\_\_\_  
0% ( \_\_\_\_\_ ) 100%

### Section V: Sitting

Back pain limits my sitting in a chair to:

None \_\_\_\_\_ Some \_\_\_\_\_ I can't sit at all \_\_\_\_\_  
0% ( \_\_\_\_\_ ) 100%

### Section VI: Standing

How much does pain interfere with your tolerance to stand for long periods?

None (same as before) \_\_\_\_\_ Some \_\_\_\_\_ I can't stand \_\_\_\_\_  
0% ( \_\_\_\_\_ ) 100%

### Section VII: Sleeping

How much does pain interfere with your sleeping?

None (same as before) \_\_\_\_\_ Some \_\_\_\_\_ I can't sleep at all \_\_\_\_\_  
0% ( \_\_\_\_\_ ) 100%

### Section VIII: Social Life

How much does pain interfere with your social life (dancing, games, going out, eating with friends, etc.)?

None \_\_\_\_\_ Some \_\_\_\_\_ No activities \_\_\_\_\_

Same as before \_\_\_\_\_ total loss \_\_\_\_\_  
0% ( \_\_\_\_\_ ) 100%

### Section IX: Traveling

How much does pain interfere with traveling in a car?

None \_\_\_\_\_ Some \_\_\_\_\_ I can't travel \_\_\_\_\_  
0% ( \_\_\_\_\_ ) 100%

### Section X: Vocational

How much does pain interfere with your job?

None \_\_\_\_\_ Some \_\_\_\_\_ I can't work \_\_\_\_\_  
0% ( \_\_\_\_\_ ) 100%

### Section XI: Anxiety/Mood

How much control do you feel that you have over demands made on you?

Total (no change) \_\_\_\_\_ Some \_\_\_\_\_ None \_\_\_\_\_  
0% ( \_\_\_\_\_ ) 100%

### Section XII: Emotional Control

How much control do you feel you have over your emotions?

Total (no change) \_\_\_\_\_ Some \_\_\_\_\_ None \_\_\_\_\_  
0% ( \_\_\_\_\_ ) 100%

### Section XIII: Depression

How depressed have you been since the onset of pain?

Not depressed \_\_\_\_\_ Overwhelmed by \_\_\_\_\_  
significantly \_\_\_\_\_ depression \_\_\_\_\_  
0% ( \_\_\_\_\_ ) 100%

### Section XIV: Interpersonal Relationships

How much do you think your pain has changed your relationships with others?

Not changed \_\_\_\_\_ Drastically changed \_\_\_\_\_  
0% ( \_\_\_\_\_ ) 100%

### Section XV: Social Support

How much support do you need from others to help you during this onset of pain (taking over chores, meals, etc)?

None needed \_\_\_\_\_ All the time \_\_\_\_\_  
0% ( \_\_\_\_\_ ) 100%

### Section XVI: Punishing Response

How much do you think others express irritation, frustration or anger toward you because of your pain?

None \_\_\_\_\_ Some \_\_\_\_\_ All the time \_\_\_\_\_  
0% ( \_\_\_\_\_ ) 100%

I-VIIx3= \_\_\_\_\_ VIII-Xx5= \_\_\_\_\_ XI-XIIIx5= \_\_\_\_\_ XIV-XVx5= \_\_\_\_\_

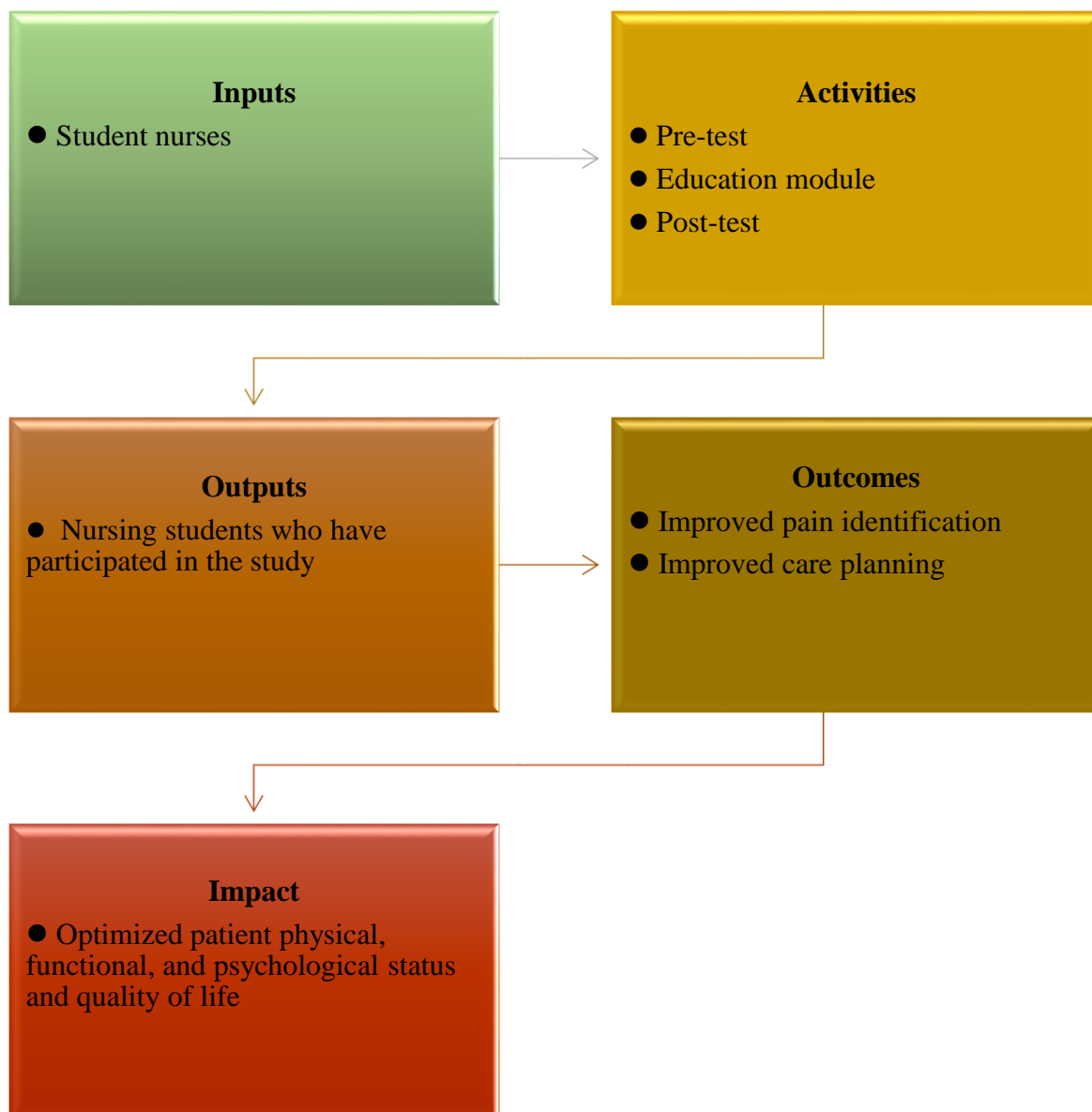


### Appendix C. Budget and Resources

As this was a DNP project, there was no cost to conduct this particular study. However, costs to replicate this project would include site rental of \$400, to cover the use of a classroom large enough for 20-30 participants, equipped with audiovisual equipment for the presentation of the educational module. Three sessions of one hour each will be sufficient to attain the number of participants desired. The researcher would be compensated \$1500 total- \$300 for the time spent conducting the study and \$1200 to do the analysis of the data. Materials included printed pre-and post-tests, and educational handouts for participants to use during the presentation, which cost less than \$100 to produce; and refreshments, \$42. The total budget for this project would be \$2015.80.

| Item | Site<br>Rental | Compensation<br>for researcher | Paper and Printer<br>\$0.10 X 9 pages per<br>student participant=<br>\$0.90 for 82 participants | Refreshments<br>\$14.00 X 3<br>sessions | Total     |
|------|----------------|--------------------------------|---|---|-----------|
| Cost | \$400          | \$1500.00                      | \$73.80   | \$42.00                                 | \$2015.80 |

Appendix D. Logic Model



Appendix E. Conceptual Diagram

**Project**

Does the education about the COMT-RN increase the knowledge of patient pain identification and improve care planning by student nurses?

**Problem Identification and Assumptions**

Quantifying and measuring subjective issues such as pain can be difficult for a nurse to standardize for effective care planning. An objective tool that is standardized, evidence-based, nurse-driven, and comprehensive would be valuable for the nurse to develop and manage an effective care plan that will influence a patient's recovery to optimize physical, functional, and psychological status as well as quality of life.

Appendix F. Participant Information Sheet



RUECKERT-HARTMAN COLLEGE FOR HEALTH PROFESSIONS  
LORETTO HEIGHTS SCHOOL OF NURSING

**Participant Information Sheet**

Thank you for your participation in this research study. I am a doctoral student and this project is a requirement for my degree. Your participation not only helps me in my educational pursuits, but also adds to the body of nursing knowledge for evidence-based practice.

The purpose of the study is to determine if education about Comprehensive Outcomes Management Technologies for Registered Nurses (COMT-RN) increases the knowledge of patient pain identification and improved care planning by student nurses.

This project consists of a pre-test, an educational module about COMT-RN, and a post-test. It should take about one hour. You will be given handouts with the presentation, and you may ask questions throughout the study. The activities in this project are the pre-test, the education offered to you, and the post-test.

No foreseeable risks or discomforts have been identified. Refreshments will be provided to thank you for your time and participation.

Your confidentiality will be maintained. Your name will not be asked for or used in any part of this study. All study materials will be kept in a locked cabinet, and results and the analysis will be kept in a password-protected computer. You will be assigned an alphanumeric number to protect your identity.

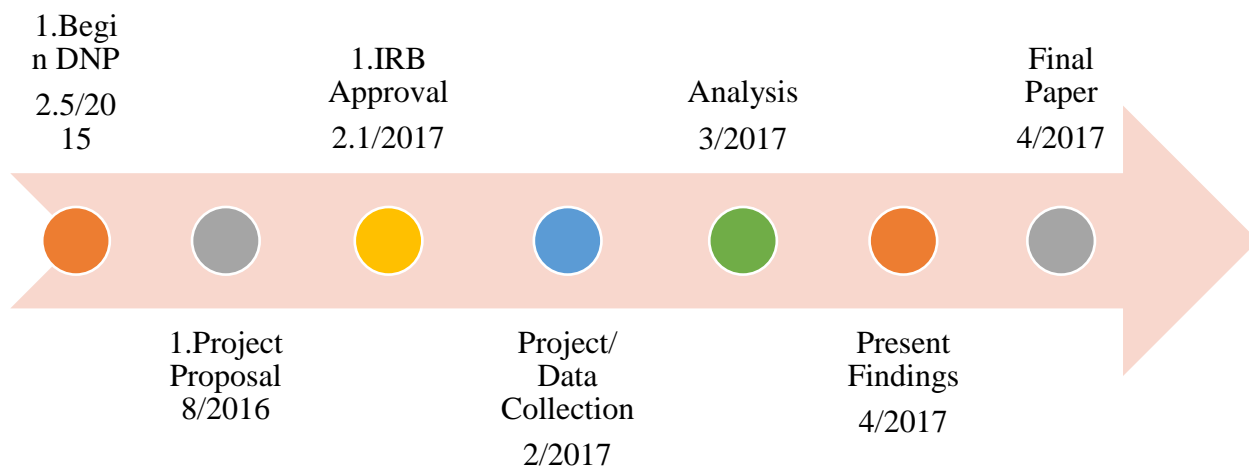
Your participation is voluntary and that participation may cease at any time without penalty or loss of benefits. Participation in this project will not affect your grades in any way.

If you have any questions related to study participation, please contact me at 303-292-0015 or via email at [dream@denverschoolofnursing.edu](mailto:dream@denverschoolofnursing.edu), or Dr. Christine Finn, at 719-661-6750 or via email at [cfinn@regis.edu](mailto:cfinn@regis.edu). If you have any questions related to research subjects' rights, please call the Regis IRB at 303-458-4206 or via email at [irb@regis.edu](mailto:irb@regis.edu).

Thank you again for your important contribution to nursing science!

Diane Ream, MS, RN

Appendix G. Timeline



Appendix H. Pre-Test

|    | <b>Please mark your answer for each question. In addition, please circle the item number if you would like to learn more about it.</b>  | Always | Sometimes | Never | I do not know what this is |
|----|---|--------|-----------|-------|----------------------------|
| 1  | I use an evidence-based tool to assess my patients' pain which appraises their ability to perform ADLs, participate in work and leisure activities, their level of anxiety and/or depression, and social support issues |        |           |       |                            |
| 2  | I use an evidence-based tool to assess psychosocial factors that could affect my patients' outcomes   |        |           |       |                            |
| 3  | I use an evidence-based tool to measure and predict my patients' outcomes   |        |           |       |                            |
| 4  | I am confident that my psychosocial assessment is free of bias  |        |           |       |                            |
| 5  | I understand the connection between my patients' psychosocial factors and their outcomes  |        |           |       |                            |
| 6  | I am confident that my collaboration with other providers communicates consistently to address my patients' outcomes  |        |           |       |                            |
| 7  | I understand how to incorporate outcomes measurement in care planning   |        |           |       |                            |
| 8  | I understand how to incorporate pain assessments in care planning   |        |           |       |                            |
| 9  | I understand how to incorporate psychosocial assessments in care planning   |        |           |       |                            |
| 10 | I have difficulty in quantifying psychosocial qualitative issues such as pain, anxiety, guilt, hope, and frustration and/or somatic issues such as weakness, tenseness, dizziness, and aching.                          |        |           |       |                            |

Appendix I. Post-Test

|    | Please mark your answer for each question. In addition, please circle the item number if you would like to learn more about it.  | Always | Sometimes | Never | I do not know what this is |
|----|--|--------|-----------|-------|----------------------------|
| 1  | It is important to use an evidence-based tool to assess my patients' pain which appraises their ability to perform ADLs, participate in work and leisure activities, their level of anxiety and/or depression, and social support issues |        |           |       |                            |
| 2  | It is important to use an evidence-based tool to assess psychosocial factors that could affect my patients' outcomes   |        |           |       |                            |
| 3  | It is important to use an evidence-based tool to measure and predict my patients' outcomes   |        |           |       |                            |
| 4  | It is important that my psychosocial assessment is free of bias  |        |           |       |                            |
| 5  | It is important to understand the connection between my patients' psychosocial factors and their outcomes  |        |           |       |                            |
| 6  | It is important that my collaboration with other providers communicates consistently to address my patients' outcomes  |        |           |       |                            |
| 7  | It is important to understand how to incorporate outcomes measurement in goal planning   |        |           |       |                            |
| 8  | It is important to incorporate pain assessments in care planning   |        |           |       |                            |
| 9  | It is important to incorporate psychosocial assessments in care planning   |        |           |       |                            |
| 10 | It is important to be able to quantify psychosocial qualitative issues such as pain, anxiety, guilt, hope, and frustration and/or somatic issues such as weakness, tenseness, dizziness, and aching.                                     |        |           |       |                            |

Appendix J. Dr. Scott Primack Approval Letter

9/29/2016

To Whom It May Concern:

I have been working with Diane Ream on her assigned research project as she works toward her PhD with Regis University. Diane is working on an outcomes measurement system focusing on the nursing arena, using my developed software entitled Comprehensive Outcomes Management Technologies, LLC.

This software is built using a number of functional assessments as well as a psychological intake which provides a comprehensive psychosocial perception from the patient's point of view as to how they perceive function in relation to their injury. Each of the assessments utilized within the software are validated and authorized for use.

The assessments consist of:

Psychological Assessment:

DRAM – Distress and Risk Assessment Method (a combination of the Modified Zung Depression Index and the Modified Somatic Perception Questionnaire)

Functional Assessments:

Dallas Pain Questionnaire

Simple Elbow Test Questionnaire

Foot / Ankle Questionnaire

Hand / Wrist Symptom Severity Scale

Simple Knee Test Questionnaire

Simple Shoulder Test

I strongly encourage Diane to use the COMT system, which includes the DRAM and DPQ (Dallas Pain Questionnaire) and I will also support her by being a reference for validity and reliability of the data.

Should you have any questions or concerns regarding this matter, please do not hesitate to contact me.

Sincerely,

Scott J Primack, DO

President / CEO

Comprehensive Outcomes Management Technologies, LLC (COMT)


Ph: 303-306-2480

Email: [scott.primack@comtoutcomes.com](mailto:scott.primack@comtoutcomes.com)

[www.comtoutcomes.com](http://www.comtoutcomes.com)



Appendix K. COMT Education Module



## COMT-RN Overview and Guide

Diane Ream, MS, RN

### Problem

- Quantifying and measuring subjective issues such as pain can be difficult for a nurse for effective care planning.
- An objective tool that is evidence-based, nurse-driven, and comprehensive would be valuable for the nurse to create an effective care plan that will help the patient's recovery and optimize physical and psychological status as well as their quality of life.

### Overview

COMT-RN is a tool to improve the nurse's ability to:

- Measure qualitative outcomes data
- Individualize care planning
- Improve pain management
- Improve patient outcomes

### The Connection Between the Mind and Body

- One study looked at 1,595 injured patients and found that 64% had one or more diagnosable mental health disorders, compared to the usual 15% in the general population.
- It has been shown that psychosocial factors accurately predict delayed recovery for patients suffering acute pain 91% of the time without using medical information.

### How does COMT-RN work?

- COMT-RN is comprised of three questionnaires:
  - The Modified Somatic Perception Questionnaire (MSPQ)
  - The Modified Zung Depression Index (MZDI)
  - A functional assessment - in this case, the Dallas Pain Questionnaire (DPQ).
- The results of these tests are scored and placed into one of four categories that help guide care planning.

### DRAM

- The Modified Somatic Perception Questionnaire (MSPQ) and the Modified Zung Depression Index (MZDI) combined are called the Distress and Risk Assessment Method (DRAM).

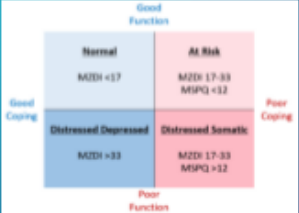
$MSPQ + MZDI = DRAM$

| DRAM Scoring            |                        |
|-------------------------|------------------------|
| • Normal                | MZDI < 17              |
| • At Risk               | MZDI 17-33 + MSPQ < 12 |
| • Distressed Depressive | MZDI > 33              |
| • Distressed Somatic    | MZDI 17-33 + MSPQ > 12 |

### Categorizing

DRAM will calculate a patient's score in one of four categories:

- Normal
- At risk
  - Distressed depressed
  - Distressed somatic



### DPQ

- The Dallas Pain Questionnaire (DPQ) is one way to evaluate patients' perceptions of how pain affects their lives, in four different areas:
- ADLs
- Work and leisure activities
- Anxiety and depression
- Social issues

### DPQ Scoring

- The Dallas Pain Questionnaire (DPQ) is made so that patients would be less likely to rate their pain as "none" or "terrible". Each section is weighted differentially.
- To calculate the DPQ score:
  - Answers in sections 1-7 are multiplied x 3 (Measures pain, ADLs)
  - Answers in sections 8-10 are multiplied x 5 (Measures work and leisure activities)
  - Answers in sections 11-13 are multiplied x 5 (Measures anxiety and depression)
  - Answers in sections 14-16 are multiplied x 5 (Measures social support and relationships)

### How to Use in Care Planning

- These measurements combine patient perception, clinical examination, and pathology
- COMT-RN not only measures function, but also takes into account the patient's perception of function and perception of pain. Perception plays a significant role in how an individual will respond to a treatment plan
- Use the DPQ score as a pain assessment

### Why COMT-RN?

- Combines the psychosocial and functional components to provide measurement and efficacy in care planning
- Provides clear and consistent documentation to support care plan
- Quality communication with other providers
- Reliable care planning - free from bias

Appendix L. Agency Approval Letter



**Letter of Agreement**

*July 19, 2016*

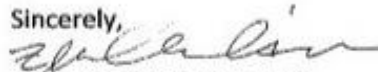
To Regis University Institutional Review Board (IRB):

I am familiar with Diane Ream's research project entitled Evaluation of an Evidence-Based, Nurse-Driven Comprehensive Outcomes Management Technologies Tool Designed to Increase the Knowledge of Patient Acute or Chronic Pain Identification and Improve Care Planning by Student Nurses. I understand Denver School of Nursing's involvement to be allowing students to be given a pre-test, an educational module, and a posttest to obtain data to determine if nursing students demonstrate an increase in knowledge of patient pain identification and care planning as evidenced by improved scores between pre and post education testing.

I understand that this research will be carried out following sound ethical principles and that participant involvement in this research project is strictly voluntary and provides confidentiality of research data, as described in the proposal.

Therefore, as a representative of Denver School of Nursing, I agree that Diane Ream's research project may be conducted at our agency/institution.

Sincerely,



*Denver School of Nursing*

*Z. JoAnna Hill, PhD FNP-BC LHRM*

*Dean of Nursing Education Programs*

Appendix M. IRB Approval Letter



REGIS.EDU

**Institutional Review Board**

DATE: January 26, 2017

TO: Diane Ream, MS

FROM: Regis University Human Subjects IRB

PROJECT TITLE: [943848-2] Method to Increase the Knowledge of Patient Pain Identification by Student Nurses

SUBMISSION TYPE: Amendment/Modification

ACTION: MODIFICATIONS REQUIRED

APPROVAL DATE: January 26, 2017

EXPIRATION DATE:

REVIEW TYPE: Exempt Review

Thank you for your submission of Amendment/Modification materials for this project. The Regis University Human Subjects IRB has determined that the following MODIFICATIONS are REQUIRED in order to secure approval:

This protocol has been significantly revised and is much more readable than the original submission. That being said, the following issues were identified:

1. An outdated form for submission was submitted, not the required IRBNet form.
2. The original submission requested approval per Categories #1 and #2. On the re-submission, only Category #2 was requested. This project involves students in an educational setting and thus, Category #1 should be requested.
3. Secondary hypotheses were included that are not part of the project: Improved care planning and improved patient outcomes. These should be removed from the narrative.
4. The participant information sheet states that the "experimental" procedures are the student answers on the pre-test and post-test; this is not correct because the slide presentation is the "intervention" (the experimental part of the project); the pre-test and post-test are the metrics to assess change (outcomes).

Once these minor changes are completed, I would recommend approval. The student investigator needs to be cautioned that applications in the future must include the correct and current form or they cannot be reviewed.

Research activities in accordance with this submission may not begin until this committee has received a response to these conditions and issued final approval.

This submission has received Exempt Review based on applicable federal regulations.

If you have any questions, please contact the Institutional Review Board at [irb@regis.edu](mailto:irb@regis.edu). Please include your project title and reference number in all correspondence with this committee.

## Appendix N. CITI Certificate

**COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM)  
COURSEWORK REQUIREMENTS REPORT\***

\* NOTE: Scores on this Requirements Report reflect quiz completions at the time all requirements for the course were met. See list below for details. See separate Transcript Report for more recent quiz scores, including those on optional (supplemental) course elements.

- **Name:** Diane Ream (ID: 5337211)
- **Email:** ream083@regis.edu
- **Institution Affiliation:** Regis University (ID: 745)
- **Institution Unit:** Nursing
- **Curriculum Group:** Human Research
- **Course Learner Group:** Social Behavioral Research Investigators and Key Personnel
- **Stage:** Stage 1 - Basic Course
- **Report ID:** 18508844
- **Completion Date:** 02/10/2016
- **Expiration Date:** 02/09/2019
- **Minimum Passing:** 80
- **Reported Score\*:** 86

**REQUIRED AND ELECTIVE MODULES ONLY****DATE COMPLETED**

|  |          |
|--|----------|
| Belmont Report and CITI Course Introduction (ID: 1127) | 02/09/16 |
| History and Ethical Principles - SBE (ID: 490)         | 02/09/16 |
| The Federal Regulations - SBE (ID: 502)                | 02/09/16 |
| Assessing Risk - SBE (ID: 503)                         | 02/10/16 |
| Informed Consent - SBE (ID: 504)                       | 02/10/16 |
| Privacy and Confidentiality - SBE (ID: 505)            | 02/10/16 |
| Regis University (ID: 1164)                            | 02/10/16 |

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

**CITI Program**Email: [citisupport@miami.edu](mailto:citisupport@miami.edu)

Phone: 305-243-7970

Web: <https://www.citiprogram.org>

Collaborative Institutional  
Training Initiative  
at the University of Miami

## COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI PROGRAM) COURSEWORK TRANSCRIPT REPORT\*\*

\*\* NOTE: Scores on this Transcript Report reflect the most current quiz completions, including quizzes on optional (supplemental) elements of the course. See list below for details. See separate Requirements Report for the reported scores at the time all requirements for the course were met.

- **Name:** Diane Ream (ID: 5337211)
- **Email:** ream983@regis.edu
- **Institution Affiliation:** Regis University (ID: 745)
- **Institution Unit:** Nursing
  
- **Curriculum Group:** Human Research
- **Course Learner Group:** Social Behavioral Research Investigators and Key Personnel
- **Stage:** Stage 1 - Basic Course
  
- **Report ID:** 18506844
- **Report Date:** 02/10/2016
- **Current Score\*\*:** 86

### REQUIRED, ELECTIVE, AND SUPPLEMENTAL MODULES

### MOST RECENT

|  |          |
|--|----------|
| History and Ethical Principles - SBE (ID: 490)         | 02/09/16 |
| Belmont Report and CITI Course Introduction (ID: 1127) | 02/09/16 |
| The Federal Regulations - SBE (ID: 502)                | 02/09/16 |
| Assessing Risk - SBE (ID: 503)                         | 02/10/16 |
| Informed Consent - SBE (ID: 504)                       | 02/10/16 |
| Privacy and Confidentiality - SBE (ID: 505)            | 02/10/16 |
| Regis University (ID: 1164)                            | 02/10/16 |

For this Report to be valid, the learner identified above must have had a valid affiliation with the CITI Program subscribing institution identified above or have been a paid Independent Learner.

#### CITI Program

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