

Validating Standardized Integrative Nursing Guidelines for Symptom Management

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Received: December 17, 2019; **Published:** January 11, 2020

Abstract

Introduction: Evidence-based guidelines improve client health by identifying best practices, optimizing clinical interventions, and standardizing documentation. Kreitzer and Koithan [1] describe integrative nursing interventions to manage symptoms including stress, anxiety, sleep disturbance, nausea, depressed mood, fatigue, pain, cognitive impairment, human spirit, and palliative care. In the era of electronic health records, there is a need for structured documentation of evidence-based integrative nursing practice to disseminate and guide integrative nursing interventions and standardize data collection for outcomes. The purpose of this study was to validate a guideline based on the Omaha System and developed for integrative nursing interventions.

Methods: Two Omaha System experts identified and encoded problems and interventions in symptom management chapters of Integrative Nursing [1]. Ten content experts evaluated the accuracy of encoding using a content expert approach. Differences were resolved by consensus.

Results: Initial agreement was 66.8% across all interventions; after revisions, agreement reached 97.6%.

Conclusion: Validated integrative nursing guidelines provide support for clinical decision making and person-centered care. Documentation using the guideline will enable data comparison and interoperability across settings, populations, disciplines, and jurisdictions. Next steps include evaluating patient outcomes using Omaha System measures.

Keywords: Integrative Nursing; Integrative Therapies; Integrative Nursing Guideline; Omaha System

Background

Integrative nursing guideline for the Omaha system

Integrative nursing is defined by Kreitzer as “a way of being-knowing-doing that advances the health and wellbeing of persons, families, and communities through caring/healing relationships. Integrative nurses use evidence to inform established and emerging interventions that support whole person/whole systems healing” (2015, p. 1). Integrative nursing provides a framework for patient care

that includes the following six principles: (a) Caregiver Wellbeing, (b) Whole Systems, (c) Innate Capacity for Health, (d) Healing Role of Nature, (e) Person and Relationship Centered, and (f) Evidence Informed. In this framework the four underlying concepts of mindfulness, presence, intention, and intuition are put forth. The application of integrative nursing to patient care would address the public’s use of integrative therapies as well as increase patient satisfaction with care [1]. At present integrative nursing and integrative therapies are not adequately addressed or documented in electronic health records (EHRs); furthermore, this inclusion would enable assessments, interventions, and evaluations of integrative nursing, as well as drive quality improvement measures [1].

Integrative therapies are an aspect of Integrative Nursing. Integrative therapies are used by a large number of adults in the United States. Clark and colleagues (2015) document that 33.2% of U. S. adults using at least one type of integrative therapies over the last 12 months of 2012. The most commonly used integrative therapy is herbal or dietary supplements (37%), followed by massage therapy, chiropractics, and body work (22%) [2]. Further, integrative therapies are increasingly offered by nurses to patients in clinical environments. A systematic review reported that the prevalence of integrative therapies offered by nurses is 53.7%, range from 20 to 70% [3]. The primary reasons for utilizing integrative therapies are managements of symptoms including chronic pain, nausea, vomiting, anxiety, and depression [4,5].

Despite the adoption of integrative therapies, the use of the therapies was seldom documented in electronic health records (EHRs) [6]. Lack of informatics infrastructure for the documentation was reported [7]. With the advent of EHRs there is a need for standardized terminologies with codes in order to encode and communicate comparable health care data including integrative interventions [8]. Use of standardized terminology would promote the use of standardized integrative intervention descriptions with codes in EHRs and enable capture of integrative nursing assessments, interventions, and outcomes [8,9].

One standardized terminology system that could be useful to document integrative nursing is the Omaha System. The Omaha System Community of Practice [10] (formerly the Minnesota Omaha System Users Group) is comprised of an interdisciplinary working group of health care clinicians, administrators, educators, and industry colleagues that use Omaha System for documentation and quality improvement. The Omaha System Community evaluates guidelines for applicability in practice and fidelity to Omaha System heuristics. The Omaha System was developed between 1975 and 1993 to create an international, standardized, validated terminology to guide clinical care [9]. The Omaha System is widely used and has been translated into 17 languages. There is an online Omaha System Listserv of more than 2600 international members that share experiences, partnerships, and projects [11,12]. Since the Omaha System was published, it has been widely used to capture and represent various clinical practice by healthcare providers from multidisciplinary and countries [13-16]. The application of integrative nursing care to the Omaha System would enable worldwide assessments, interventions, and evaluations of the use of integrative therapies as well as documentation.

The Omaha System has the following three components: Problem Classification Scheme, Intervention Scheme, and Problem Rating Scale for Outcomes [9] (Figure 1). The Problem Classification Scheme consists of 42 problem concepts that comprehensively and holistically describe health within the four domains of Environmental, Psychological, Physiological, and Health-related Behaviors. Each problem concept has a definition and a unique set of signs/symptoms [9]. For example, the symptom difficulty managing stress is one of 17 signs/symptoms of the Mental health problem, while the symptom insomnia is one of 8 signs/symptoms of the Sleep and rest patterns problem [9].

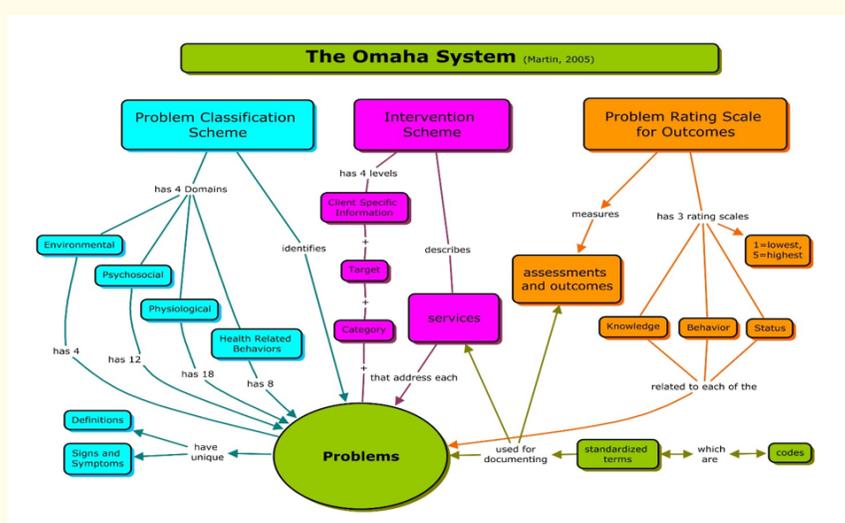


Figure 1: A concept map of the Omaha System [9], copyright Karen A. Monsen 2009, used with permission.

The Intervention Scheme addresses the problem concepts defined by the Classification Scheme [9]. Each intervention addresses an identified problem and is described using a category (action term), target (defined intervention term), and care description (additional narrative). There are four category terms, Teaching, guidance, and counseling (TGC), Treatments and procedures (TP), Case management (CM), and Surveillance (S) defined as follows: TGC are “activities designed to provide information and materials, encourage action and responsibility for self care and coping, and assist the individual, family, or community to make decisions and solve problems” ([9], p. 27). CM is “coordination, advocacy, and referral that facilitate service delivery, promote assertiveness, guide the individual, family, or community toward use of appropriate resources, and improve communication among health and human service providers” ([9], p. 27). TP are “technical activities such as wound care, specimen collection, resistive exercises, and medication prescriptions that are designed to prevent, decrease, or alleviate signs and symptoms for the individual, family, or community. Surveillance is defined as “activities such as detection, measurement, critical analysis, and monitoring intended to identify the individual, family, or community’s status in relation to a given condition or phenomenon” ([9], p. 27). There are 75 defined target terms that further specify the intervention. Finally, a customizable care description enables a nuanced tailoring of each intervention for a particular program, population, or practice [9].

The Problem Rating Scale for Outcomes, like the Intervention Scheme, relates to the problem concepts of the Problem Classification Scheme [9]. It consists of three Likert-type ordinal measures for Knowledge (1 = no knowledge to 5 = superior knowledge), Behavior (1 = not appropriate to 5 = consistently appropriate), and Status (1 = extreme signs/symptoms to 5 = no signs/symptoms). The Problem Rating Scale for Outcomes enables serial measurement of problem-specific changes over time. The Omaha System has been embedded within the EHR for use in clinical decision support and documentation for numerous populations [9,17,18]. However, there has not been a formal validation of a guideline describing interventions for the symptom management chapters of Integrative Nursing [1].

Purpose of the Study

The purpose of this study was to validate an Omaha System guideline developed for integrative nursing interventions.

Methods

This guideline validation study was conducted at a large Midwestern University using symptom chapters from Integrative Nursing [1] with a clinical expert approach (chapter authors, integrative and Omaha System experts) and was deemed exempt from Institutional Review by the University Institutional Review Board.

In the intervention mapping phase, evidence-based information on integrative therapies for symptom management were extracted from each of the 10 symptom chapters from Integrative Nursing [1]: Stress, nausea, sleep disturbances, anxiety, depressed mood, fatigue, pain, cognitive impairment, care of the human spirit, and palliative care-end of life. The integrative therapies were then mapped to Omaha System terms using established terminology mapping methods [19]. From the narrative descriptions of integrative interventions, intervention phrases were abstracted into an Excel spreadsheet in preparation for mapping to the 42 Omaha System concepts, 4 Category (action) terms, and 75 Target terms, so that each phrase was mapped to a single problem, category, and target. First, a graduate nursing student (PK) trained in Omaha System concept definitions created an initial mapping of the phrases. Second, an Omaha System expert and integrative nursing expert (KM and MJK) reviewed and revised the initial mapping. Finally, all authors reviewed and revised the mapping decisions and created a final mapping. Differences were resolved through consensus. The terminology experts looked for overlapping information from the four parts of the problem classification for all of the chapters. Exact intervention duplicates were deleted. An excerpt of the guideline is provided in table 1.

In the validation phase, the interventions for each chapter were reviewed by ten content experts consisting of eight original chapter authors in Integrative Nursing [1] and two integrative nursing experts who were recruited to review the interventions for the chapter authors that did not respond. All content experts held doctoral degrees or master’s degrees with advanced practice specialties. The content

Problem	Category	Target	Care Description
Sleep and rest patterns	Case management	Relaxation/breathing techniques	Meditative reflection, MBSR class, repetition of a word, phrase, prayer, or sound
Sleep and rest patterns	Case management	Support group	Stress management support groups/reliable on-line sites/intentional social support
Sleep and rest patterns	Teaching, guidance, and counseling	Relaxation/breathing techniques	Biofeedback
Sleep and rest patterns	Teaching, guidance, and counseling	Relaxation/breathing techniques	Hypnosis
Sleep and rest patterns	Teaching, guidance, and counseling	Relaxation/breathing techniques	Music therapy
Sleep and rest patterns	Teaching, guidance, and counseling	Relaxation/breathing techniques	Progressive muscle relaxation technique, guided imagery
Sleep and rest patterns	Teaching, guidance, and counseling	Relaxation/breathing techniques	Self hypnosis
Sleep and rest patterns	Teaching, guidance, and counseling	Social work/counseling care	Psychotherapy/behavioral therapy
Sleep and rest patterns	Treatments and procedures	Dietary management	Eating highly digestible foods
Sleep and rest patterns	Treatments and procedures	Dietary management	Nutritional supplement
Sleep and rest patterns	Treatments and procedures	Medication administration	Aromatherapy
Sleep and rest patterns	Treatments and procedures	Medication administration	Detoxifying
Sleep and rest patterns	Treatments and procedures	Medication administration	Nutritional supplement
Sleep and rest patterns	Treatments and procedures	Medication administration	Pharmacologic interventions
Sleep and rest patterns	Treatments and procedures	Relaxation/breathing techniques	Rejuvenation therapy
Sleep and rest patterns	Treatments and procedures	Sickness/injury care	Acupuncture/acupressure
Sleep and rest patterns	Treatments and procedures	Wellness	Massage

Table 1: Excerpt of the integrative nursing (2014) symptom intervention for the sleep and rest patterns problem.

experts were asked to evaluate the clarity, utility, and accuracy of the terminology expert mapping using an online evaluation tool. Content experts were recruited by email and telephone and were provided with the Integrative Nursing Guideline [20], links to resources on the Omaha System [9] a link to the online survey, and contact information for the first author. Follow-up emails and phone calls were made to remind the participants to complete the survey.

Results

Omaha System expert mapping of Kreitzer and Koithan Integrative Nursing symptom chapter interventions to the Omaha System yielded 211 interventions for ten problems: Digestion/hydration, Medication regimen, Mental health, Neuro-musculo-skeletal function, Nutrition, Oral health, Pain, Physical activity, Sleep and rest patterns, and Spirituality. Some interventions were unique to a symptom chapter such as Digestion/hydration-Treatments and procedures-medication administration-antiemetics before meals for the symptom of nausea; while other interventions were common across several symptom chapters such as Mental health-Teaching, guidance, and counseling-relaxation/breathing techniques-progressive muscle relaxation technique, guided imagery, for the symptoms of anxiety, cognitive disorders, depressed mood, fatigue, spiritual distress, and stress.

Initial content expert agreement with the mapping (211) resulted in 141 (66.8%) interventions deemed accurately coded by Omaha System content experts (Table 2). The mapping was revised based on content expert suggestions; however, 2.4% of interventions could not be revised because the suggested terms were not included in the Omaha System. After revisions, agreement reached 97.6% (Table 2). Eight of the 11 Integrative Nursing [1] symptom chapter interventions required revision after content expert feedback, while the three chapters on pain, cognitive brain disorders, and traumatic brain injury had 100% agreement with the guideline and no suggested changes. Table 3 provides a summary of changes suggested by the content experts. Table 4 provides specific examples of revisions made to the guidelines after expert review.

Chapter	Agreement	Agreement After Revisions	Added Interventions	Combined Interventions	Deleted Interventions
Nausea (N = 17)	14 (82.4%)	16 (94.1%)	0	0	0
Depressed Mood (N = 18)	16 (88.8%)	17 (94.4%)	0	0	0
Palliative Care (N = 20)	15 (75.0 %)	20 (100%)	<ol style="list-style-type: none"> 1. Grief_CM_coping skills_life review. 2. Grief_TGC_spiritual care-forgiveness. 	0	0
Human Spirit (N = 11)	2 (18.1%)	10 (90.9%)	Spirituality_TGC_Spiritual care facilitate participation in meaningful spiritual/religious practices/rituals.	0	0
Stress (N = 21)	6 (28.6%)	21 (100%)	Mental health_TGC_environment_Environmental manipulation.	Combine tai chi, Qi gong, and yoga into one intervention.	Delete one yoga intervention due to replication.
Sleep Disturbances (N = 27)	9 (33.3%)	27(100%)	<ol style="list-style-type: none"> 1. Sleep and rest patterns_ aromatherapy <ol style="list-style-type: none"> a. Physical b. Relaxation / breathing techniques. 2. Sleep and rest patterns_reflexology_relaxation/ breathing techniques. 3. Sleep and rest patterns_sleep hygiene_environmental changes, light and dark. 4. Sleep and rest patterns_hypnosis_relaxation/ breathing techniques. 	0	<ol style="list-style-type: none"> 1. Mental health_TP_dietary management_nutritional supplement. 2. Mental health_sickness/injury care_music therapy.

Anxiety (N = 14)	6 (42.8%)	14(100%)	0	0	0
Fatigue (N = 25)	15 (60.0%)	23 (92.0%)	0	0	0
Pain (N = 22)	22 (100 %)	No revisions needed	0	0	0
Cognitive Brain Disorders (N = 25)	25 (100%)	No revisions needed	0	0	0
Traumatic Brain Injury (N = 11)	11 (100%)	No revisions needed	0	0	0
Totals	141 (66.8%)	206 (97.6%)	0	0	0

Table 2: Percentages of agreement of content experts before and after guideline revision.

Chapter	Omaha System suggested Problem	New suggested Problems	Omaha System suggested Targets	New suggested Targets
Nausea (N = 17)	Spirituality, Mental health	0	Relaxation/breathing techniques	0
Depressed Mood (N = 18)	0	Energy	Relaxation/breathing techniques	0
Palliative Care (N = 20)	Grief	0	0	Plant-based natural substance
Human Spirit (N = 11)	Spirituality	0	Relaxation/breathing techniques	Movement
Stress (N = 21)	Mental health	0	Environment, rest/sleep, s/sx physical, relaxation/breathing techniques, wellness	0
Sleep Disturbances (N = 27)	Sleep and rest patterns	0	Environment, rest/sleep, s/sx physical, relaxation/breathing techniques, wellness	0
Anxiety (N = 14)	Physical care	Energy	0	Movement, energy, plant-based natural substance
Fatigue (N = 25)	Spirituality	Energy, Mind/body	Dietary management	Elimination
Pain (N = 22)	0	0	0	0
Cognitive Brain Disorders (N = 25)	0	0	0	0
Traumatic Brain Injury (N = 11)	0	0	0	0

Table 3: Suggested changes in problem and target terms by integrative nursing [1] symptom management chapter.

Chapter	Before Revisions	After Revisions
Nausea	Digestion/hydration_TP_sickness/injury care, music therapy.	Mental health_TP_relaxation/breathing techniques_music therapy.
Depressed Mood	Mental health_CM_relaxation/breathing techniques_meditative reflection, MBSR class, repetition of a word, phrase, prayer, or sound.	Mental health_TP_relaxation/breathing techniques_meditative reflection, MBSR class, repetition or a word, phrase, prayer, or sound.
Palliative Care	Mental health_TP_medication administration_ aromatherapy	Mental health_TP_stress management_ aromatherapy
Human Spirit	Mental health_TGC_coping skills_journaling	Spirituality_TGC_spiritual care_reflective journaling.
Stress	Physical activity_CM_exercises_stress management	Mental health_CM_tai chi, qigong, yoga_stress management
Sleep Disturbances	Mental health_TP_sickness/injury care_music therapy	Sleep and rest patterns_relaxation/breathing techniques_music therapy
Anxiety	Mental health_TP_dietary management_nutritional supplement	Nutrition_TP_dietary management_nutritional supplement
Fatigue	Mental health_CM_relaxation /breathing techniques_meditative reflection, MBSR class, repetition of a word, phrase, prayer or sound.	Spiritual health_CM_relaxation/breathing techniques_meditative reflection, MBSR class, repetition of a word, phrase, prayer or sound.

Table 4: Examples of selected interventions before and after revision of guidelines.

Comments from experts were reviewed and addressed in the process of revising interventions for the final guideline. The comments were generally related to semantic representation of integrative nursing content. In the original mapping, various energy-related interventions were encoded related to the Mental health and/or Physical activity problems. Content experts that the use of Mental health or Physical activity did not seem to address the human energy field and the need for energy restoration (or balance), the mind/body focus, or mindful movement intent of integrative therapies. Furthermore, in the original expert mapping, aromatherapy interventions were encoded using the intervention target medication administration. Four content experts stated that the medication administration target did not fit with aromatherapy, and one content expert quoted the Food and Drug Administration (FDA) that essential oils (for aromatherapy) are not medications for treatment or prevention [2]. Two content experts commented that the target of exercise does not capture the intent of the care descriptions of Tai Chi, Qi Gong, and Healing Touch. These therapies are more about energy flow through breathing and movement. Lastly, content experts suggested adding terms Energy (problem list) and physical care and mind/body (targets); and suggested replacing aromatherapy with plant based and/or natural therapies.

Discussion

Integrative Nursing symptom chapter interventions terminology mapping was completed using the Omaha System, and each chapter was validated through a survey of content experts. Findings demonstrated that the Omaha System was broadly applicable for Integrative Nursing. Additional terms were suggested to enhance the Omaha System for use with integrative therapies that will be recommended for the next revision of the Omaha System. This study establishes a baseline for further research in integrative nursing practice description, care quality, and outcomes.

The terms that were suggested by content experts reflect an emerging acceptance of mainstream use of integrative therapies in nursing and in healthcare [1]. Standardized terminologies should be critiqued and refined to reflect current practice and used appropriately and uniformly to enable interoperability of the most current interventions and practices.

The tension between clinical clarity and classification were evident as the experts tended toward streamlining interventions under a single problem for ease in documentation, while the content experts required more granular intervention descriptions specific to a particular problem. The success of this project depended on give and take between content experts and terminology experts to achieve the solution that was acceptable to both.

The findings underlie the critical importance of using standardized terminologies to represent integrative nursing interventions. Based on the findings, the following are proposed as heuristics or rules of thumb when describing integrative nursing interventions using the Omaha System:

1. A combination of content expertise and terminology expertise is needed for robust and rigorous standardized guideline development.
2. Specify problems that are most appropriate for each intervention using an integrative nursing approach based on a comprehensive, holistic perspective.
3. Specify all four categories of intervention (TGC, TP, CM and S) in separate interventions as appropriate. For example, specify use of surveillance interventions to enable documentation that interventions are planned based on initial assessments and follow up monitoring.
4. Use standardized terms as they are published in the terminology to adhere to terminology rigor and enable data interoperability. However, track and suggest new terms that would improve the knowledge representation of integrative therapies for future terminology revisions.

The implications of this study are many. The validated guidelines are available on-line in the Omaha System Guidelines web site as an appendix for the Kreitzer and Koithan [1] Integrative Nursing symptom chapters. Incorporating the guidelines in EHRs will increase the visibility of integrative interventions in practice. The guidelines have potential to provide support for clinical decision making and person-centered care using integrative nursing principles and interventions. Documentation using the guideline has potential to enable data comparison and interoperability across settings, populations, disciplines, and jurisdictions. Outcome evaluation using the Omaha System Problem Rating Scale for Outcomes relative to these interventions will enable evaluating the outcomes of integrative nursing care.

The limitations of this study include the small sample size of content experts and the challenges inherent in knowledge representation using standardized terminology. The challenges of structured, standardized knowledge representation were evident in this study as content experts struggled to understand how to use standardized, defined terms for nuanced free text intervention descriptions. It is critical that terminology experts and content experts collaborate to overcome these challenges. In this study, content experts suggested additional interventions, and combining or deleting other interventions, and terminology experts based revisions on content expert suggestions. Due to the numerous ways that interventions can be described both in free text and using standardized terminologies, it is essential that both content experts and terminology experts agree on a single approach for describing interventions. This can be accomplished by content experts to using standardized terms a priori when describing interventions, either through developing terminology expertise or through partnership with terminology experts. Further refinement of this and all guidelines should be planned to reflect additional content expertise and changes in practice. In fact, the second edition of Integrative Nursing has been published after this study was conducted, and a few additional symptoms that could be ameliorated through integrative therapies are introduced [21]. A possible next step for further extension of our guideline is to include those symptoms and integrative therapies. It is essential that documentation of these interventions use the terminologies that were established in the guideline development process with up-to-date evidence to enable future research using the data generated by integrative nursing documentation.

The research agenda set forth by the Integrative Nursing [1] symptom chapters and the related Omaha System Guidelines is extensive. There is potential to implement these guidelines in practice settings in any EHR, and in so doing evaluate the perceptions of nurses

regarding their applicability and use. Questions related to integrative nursing care from a data-driven perspective to describe tailored, person-centered care evaluate and care quality are the essential next steps. Further, this work sets a precedent for using the Omaha System to examine patient and system outcomes of the integrative nursing approach to symptom management [22-25].

Conclusion

Integrative nursing interventions were mapped to the Omaha System by terminology experts to enable dissemination of a structured, standardized method for clinical decision support and documentation. The formal mapping was evaluated by content experts and differences were resolved by consensus. The final validated clinical guidelines are available in the public domain and may be used to support, describe and evaluate integrative nursing practice. Further research is needed to evaluate use of these guidelines in practice settings, both for applicability and for care quality; and also to examine outcomes of the integrative nursing approach to symptom management.

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Volume 2 Issue 2 February 2020

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