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Outcomes for End-of-Life Patients with Anticipatory Grieving: Insights from Practice with Standardized Nursing Terminologies within an Interoperable Internet-based Electronic Health Record

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Introduction

Although grief is often associated with death, receiving a diagnosis of a terminal disease for oneself or a loved one also unleashes an onslaught of emotions for the individual and caregivers. Sorrow, grief, fear, anger, and anxiety may fill the time between diagnosis and loss. Rando defines anticipatory grief as “the phenomenon encompassing the processes of mourning, coping, interaction, planning, and psychosocial reorganization that are stimulated and begun in part in response to the awareness of the impending loss of a loved one (death) and in the recognition of associated losses in the past, present, and future.”[1, pg. 24] Though its topical presence in the literature has increased over the past half century, the continued discrepant findings highlight the importance of further research into the outcomes of those

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experiencing anticipatory grief. The purpose of our study was to examine the outcomes of hospitalized end-of-life patients with anticipatory grief.

Globally, 8 million people die of cancer every year.[2] Coupled with the 7.7 million new annual diagnoses of dementia worldwide[3] as well as the millions who lose family members to other terminal diseases, the apparent impact of anticipatory grief on the lives of the patient and caregivers is colossal. Research has been contradictory in its findings regarding of the long-term effects of anticipatory grief. Some argue that anticipatory grief may lead to a prolonged grief reaction,[4] whereas some argue that it aids recovery from the grief process after death, and others that it is not related to post-death bereavement.[5] One cited contributory reason to the contradictory findings is the lack of an operational definition.[5] An underutilized solution is the NANDA International's (NANDA-I, formerly North American Nursing Diagnosis Association International) operational definition of Anticipatory Grieving, which defines the concept as an action state of engagement in grief work before the death or loss occurs (Table 1),[6] instead of as a non-gerundial noun, anticipatory grief, which is used in much of the literature. In this article, we use Anticipatory Grieving (AG) to represent the NANDA-I diagnosis, and anticipatory grief to represent the concept, which is similar to but not necessarily conforming to the defining characteristics of AG (Table 1).[7] Researchers have demonstrated that nurses, well-trained in the use of clinical decision support, accurately use standardized nursing terms and measures for nursing diagnoses, interventions, and outcomes in the electronic health record (EHR), which makes it possible to evaluate the impact of care provided to patients with AG.[7]

Background

Though the diagnosis of AG has been applied to individuals with terminal illness, individuals experiencing perinatal loss, individuals who lose a body part,[8] or to caregivers of patients who have received a terminal diagnosis (Table1), we identified no published research using NANDA-I's operational definition of AG in patients. Historically, researchers have measured and explored the existence of anticipatory grief in both patients and caregivers/family members using scales for particular grief responses. A few examples of the instruments include the Marwit and Meuser Caregiver Inventory: Childhood Cancer, the Preparatory Grief in Advanced Cancer Patients Scale and the Caregiver Grief Scale.[9-11]

Upon review of the literature, we identified 15 studies designed to explore anticipatory grief: 14 in the hospital setting[4,8,12-23] and one in the palliative home care setting.[24] Eleven studies were with family caregivers of terminal patients,[4,12-17,20,22-24] and four were with patients.[8,18,19,21] Because only 4 studies were identified that evaluated anticipatory grief in patients, we present background information on the measurement of this concept in both the caregivers and patients. Only 6 of the reviewed studies were published in the last 5 years.[4,8,14,16,17,22] Of the 11 studies with family caregivers, four studies evaluated anticipatory grief in parents of critically ill or terminal children.[12,13,20,22] Three of the studies were qualitative.[8,14,23] Of the 12 quantitative studies, only nine studies had sample sizes larger than 80.[4,12,13,15,17-19,21,24] Nine studies had a single group design,[4,13,16,18-22,24] three had a two-group design,[12,15,17] and none had an intervention, used randomization, or focused on nurse caregivers. Only four studies were completed in the United States.[8,13,15,20]

Of the 11 international studies, 8 different countries were represented.[4,12,14,16-19,21-24] Though different ethnic groups participated, the studies were homogeneous by design, and comparison by ethnic groups was not completed. Although discovered in the literature, studies on anticipatory grief in the dementia population were not reviewed for this article as the measurements did not widely vary from other terminal diseases such as cancer or cardiac illnesses. The 15 studies' primary focus was the presence of, attributing factors to, and consequences of anticipatory grief in patients, caregivers, or family members.

Age appears to be a contributing factor in anticipatory grief. Younger caregivers and younger patients tended to report higher ratings of anticipatory grief.[13,16-19,21,24] For both mother and father caregivers of sick children, grief was greater among younger parents.[13] Older non-spouse and spouse caregivers of terminally ill patients showed fewer signs of anticipatory grief than child caregivers.[16,17,24] Researchers found a trend of increasing anticipatory grief with decreasing age among patients with terminal cancer.[18,19] Complementing this finding, Tsilika reported that terminally ill 19-25 year olds viewed death as extinction leading to increased anticipatory grief more than in the case of 26-55 year old patients.[21] Given that unmanaged anticipatory grief may be predictive of having a prolonged grief disorder[4] and that younger people experience more anticipatory grief,[13,16-19,21,24] there is a need for an improved mechanism for identifying and treating anticipatory grief in both populations of patients and caregivers.

Despite the multiple studies related to anticipatory grief, little research overall has focused on outcome measurement or potential interventions for patients or caregivers once an AG diagnosis has been made. Much of the research has been conducted on the effectiveness of using anticipatory grief tools and their relationship to coping, hope, and performance.[16,17,19-21,25] One notable gap in the literature is that we found no published studies focusing on hospitalized patients diagnosed with AG using data available in electronic health records (EHR). This gap may be due in part to the lack of quality informatics tools for recording AG. We found no published studies that examined the relationship between AG and either patient length of stay or years of nursing experience. With access to an existing, valid, and highly reliable EHR dataset coded with standardized nursing terminologies,[7] the purpose of this study was to describe the nursing care outcomes for hospitalized end-of-life patients that nurses determined met the defining characteristics and were therefore diagnosed with AG, and identify patient-and nurse-related factors (i.e., patient age, length of stay (LOS), and nursing experience) that influenced the AG-associated outcomes.

Materials and Methods

Design

This study was a descriptive, comparative analysis of an existing dataset that was obtained through routine nursing clinical practice.[7] This study was approved by the Institutional Review Board at the University of Illinois at Chicago.

Setting

A total of nine medical-surgical units from four Midwestern hospitals provided the data.[7] Table 2 represents the clinical specialties by the nine units. The registered nurses (RNs) from these units used standardized terminologies in Hands-On Automated Nursing Data System (HANDS), which is an EHR system specifically designed to document nursing care given to patients and to document patient problems using NANDA-I diagnoses,[6] outcomes using Nursing Outcome Classification (NOC),[26] and interventions using Nursing Interventions Classification (NIC)[27] at each handoff. Utilizing the standardized terminologies captured in the HANDS, studying outcomes for end-of-life patients with the NANDA-I diagnosis of AG was possible.

Sample

The data utilized in this study were derived from a primary data set of 42,403 medical-surgical care episodes constituting 34,927 unique patients.[7] An episode is defined as an uninterrupted patient stay on a single hospital study unit. Each episode may consist of multiple plans of care. A total of 1,453 unique end-of-life patients, eight with more than a single episode, were present in the dataset. For those patients with multiple episodes, we included only the last episode. Therefore, a single patient is only represented once in the analytic dataset selected for this study. We identified a patient as an end-of-life patient if the plan of care had at least one of the following: Discharge Status=expired OR “hospice home care” OR “discharged to hospice medical facility,” OR NOC= “dignified life closure” OR “comfortable death,” OR NIC= “dying care.” The mean age of the 1,453 patients was 76 years (*SD*=14), and of these, 249 patients had at least two plans of care with a diagnosis of AG. We did not include patients with one plan of care because at least two were needed to evaluate progress toward meeting expected outcomes.

Procedures/Measures

The HANDS database used in this study contains episodes of nursing plans of care gathered over a period of three years between 2005 and 2008 on nine nursing units of four hospitals.[7] At the end of the admission shift to a unit, the RN enters a plan of care that includes the NANDA-I diagnoses that were the focus of care during the shift, the NIC interventions administered, and assigns and rates the NOCs to be monitored across time. The plan of care is thereafter updated by adding and subtracting the NANDA-Is, NOCs, and NICs as needed and then rating (if new) or re-rating all NOCs at the end of each shift. At least one NOC is monitored for each NANDA-I on the plan of care and rated on a 1-5 Likert scale. A rating of 1 represents the worst/lowest outcome and 5 represents the best/highest outcome. The RN uses clinical judgement to assign NANDA-I diagnosis of AG to individual patients who manifest the corresponding indicators, also called defining characteristics and related factors (Table 1). Clinical decision support in HANDS provides immediate access to information screens that contain the standardized definitions and attributes of each NANDA-I diagnosis to support reliable and valid use of each diagnosis term. Prior research findings showed outstanding validity and reliability of nurses' use of the HANDS system to reach appropriate diagnoses.[7] The end-of-life patients included in this study were those who met designated end-of-life criteria. The variables included in this study were patient and nurse

demographics, NANDA-I nursing diagnoses NOC outcomes, NOC ratings, and NIC interventions.

Analysis

Association mining[28] was utilized to evaluate the outcomes of end-of-life patients with a NANDA-I of AG. Association mining is one of the most prominent and well-studied data mining techniques. Large datasets are evaluated to extract interesting correlations, frequent patterns, or associations among variables.[29] An association rule is an implication in the form of "if A (antecedent) →then B (consequent)", interpreted as A implies B. Association rules are created in a given dataset when the minimum values for support and confidence predefined by the user are satisfied. Support of an association rule is defined as the ratio of records that contain both A (antecedent) and B (consequent) to the total number of records in the dataset. Confidence is a measure of the strength of the association rules, defined as the ratio of records that contain both A and B to the total number of records that contain A. In association mining, the goal is to find those item-sets whose frequencies exceed a predefined threshold in the database, known as frequent item-sets and to generate association rules from those large item-sets with the constraints of minimal confidence.[30]

The first step in our procedure was to group the NANDA-I diagnoses and NIC interventions into the domains and classes defined by the NANDA-I and NIC in order to simplify the analysis. Specifically, multiple NANDA-I diagnoses and NIC interventions were logically and thematically grouped into classes, and multiple classes were grouped into domains (Table 3, Table 4, and Table 5 are online).[6,26,27] Though there are 12 possible NANDA-I domains, we focused on 7 domains that were present in at least 15% of the episodes of care with AG. Similarly, we considered nine of 23 NANDA-I classes, five of seven NIC domains, and sixteen of the 27 NIC classes.

We analyzed the data across all nursing units as well as by individual unit. We examined patient and nursing factors that might be associated with meeting outcome goals related to an AG diagnosis such as the patient's age, LOS, discharge status, unit, and nurse' years of nursing experience (experience). Patient age, LOS, and nurse experience were discretized before performing the data mining. We categorized patients into four age groups: 18-49, 50-64, 65-84, and 85+ years, based on theoretical rationale and the frequency distribution of our data. A nurse with at least two years of experience was defined as an experienced nurse, whereas a nurse with less than two years' experience was considered to be inexperienced.[31,32] The episode was categorized as one in which care provided by an experienced nurse if more than 50% of the time care was provided by nurses with at least 2 years of experience. LOS was calculated for each episode by summing the number of hours for all the nursing shifts in the episode. We then grouped the LOS into four categories: short (less than 48 hours [less than 2 days]), medium (48-119 hours [2 days to less than 5 days]), long (120-359 hours [5 days to less than 15 days]), and very long (360+ hours [15 days and longer]). No episodes were excluded due to data quality issues

For every episode, we evaluated the relationship between NANDA-Is, NICs, patient/nurse factors and whether the NOC ratings at patient discharge met the expected outcome ratings.

The expected outcome was defined as “met” if the NOC rating in the last plan of care was greater than or equal to the expected rating entered on the first plan of care.

Results

For the 249 patients who had a NANDA-I AG diagnosis, the average age was 75±14 years, with 10% of the patients aged 18-49 years, 14% 50-64 years, 49% 65-84, and 27% 85 years old or older. Of the patients with gender information, 45% were male and 55% female. The gender information was absent for 63% of patients because it was not a required data entry field in the HANDS database, and during the study, the HANDS was not directly interfaced to the EHR.

For the patients with the NANDA-I AG diagnosis, the average LOS was 107±110 hours compared with LOS of 103±108 hours for all end-of-life patients. 30% of the patients with AG stayed less than 48 hours, 41% stayed 48-119 hours, 27% stayed 120-359 hours, and only 2% stayed 360 hours or longer. 53% of the end-of-life patients with AG died in the hospital, 17% were discharged to hospice, and 29% were transferred to other units. For the overall sample of end-of-life patients, 33% were discharged to hospice, 55% died, and 12% were transferred to other units. Table 4 displays the episode frequencies for other NANDA-Is that appeared on the care plans of patients with the NANDA-I AG.

Figure 1 shows the six most frequent NOC outcomes related to the NANDA-I AG diagnosis. The horizontal axis shows the NOCs and the total count of the unique episodes that contained each NOC. The most common NOC was Family Coping that appeared in 173 episodes.

Table 3 shows the list of interventions that were used with those NOCs and Table 5 displays the episode frequencies for the NICs by classes (for the Comfortable Death NOC only). For the NOC Family Coping, the NIC Active Listening was the most commonly used intervention, appearing in 127 episodes. The NIC Family Integrity Promotion appeared in 117 episodes, and the NIC Caregiver Support appeared in 43 episodes. For the NOC Spiritual Health, the NICs Emotional Support and Spiritual Support appeared in all 82 episodes. For the NOC Comfortable Death, the NICs Dying Care and Emotional Support appeared in 43 episodes, followed by the NICs Family Involvement Promotion and Caregiver Support appearing in 35 and 34 episodes, respectively.

Figure 1 displays the frequency and percentages of the episodes for which each of the NOC outcomes was either met or not met in the 249 episodes with the NANDA-I AG diagnosis. Out of those 173 episodes with the NOC Family Coping, the NOC was met for 78 (45%) episodes and not met for 95 (55%) episodes. The second most common NOC was Spiritual Health, in which the expected NOC outcome was met in 43 episodes (52% episodes). This was the only NOC expected outcome that was met for more than 50% of the episodes. There were 74 episodes with the NOC Comfortable Death and in 34 (46%) of these episodes, the expected outcome was met. The NOC Coping was met in only 13 episodes (33%). The NOC Grief Resolution was the least common, with only 30 episodes, and only 9 episodes (30%) met the expected outcome.

We next examined the NOC outcomes by age groups. Figure 2 shows the statistics for the top three NOCs found in our study dataset: Family Coping, Spiritual Health and Comfortable Death respectively. For all the NOCs, there was no statistically significant difference between age groups. When the NOCs were evaluated by nurse experience, patients under the care of the inexperienced nurses met NOC outcomes more frequently than the patients under the care of experienced nurses. However, the difference between experienced and inexperienced nurses was not statistically significant. When NOCs were evaluated against patient LOS, there was no statistically significant difference between the groups.

Finally, we examined whether any other NANDA-Is or NICs on the plan of care had an effect on a NOC being met or not met. Association Mining was performed first on clusters consisting of NANDA-I classes and then on NANDA-I domains and similarly on NIC classes and NIC domains. Association Mining was performed using Rapid Miner 5.3 software,[33] and we considered only those rules that had a confidence of at least 50% and support of at least 15%. The minimum values for confidence and support depend on the domain knowledge. There is no definite rule to fix these values. It is advisable to keep a fair balance of support and confidence value to get appropriate rules.[34] For example, if a very high value is set, there might be no significant rules. On the other hand, for a low value, there may be too many rules that are not important.

Two clinically interesting rules emerged.

1. When no NANDA-I from the Physical Comfort class was present on the plan of care, the **NOC Comfortable Death was met** (confidence 0.70)
2. When at least one NANDA-I was present from Physical Comfort class, the **NOC Comfortable Death was not met** (confidence 0.72)

Of the 74 patients with the NOC Comfortable Death, 35 patients did not have a NANDA-I from the Physical Comfort class on their plans of care, and these patients had a higher chance (23 of 35) of meeting the expected NOC. For the remaining 39 patients who had a NANDA-I from Physical Comfort class, only 11 met the expected NOC. These differences were statistically significant ($\chi^2(1) = 8.99, p < .003$) and suggest that the presence of a NANDA-I from the Physical Comfort class, which includes NANDA-I of Acute Pain, Chronic Pain, or Nausea, was associated with the NOC Comfortable Death less likely to be met in patients with AG.

Conclusion/Discussion

In this study, we made novel findings regarding the outcomes of hospitalized end-of-life inpatients with the NANDA-I AG in their plans of care. We were unable to find any other published research findings on AG among adults hospitalized near the end of life. We, therefore, are the first to report that nursing experience, patient age, and patient LOS were not significantly associated with attainment of AG outcomes. Interestingly, we found a significant association between patient attainment of a Comfortable Death and the inclusion of a Physical Comfort class diagnoses on the plans of care that include AG. Patients who had a NANDA-I of pain or nausea in the Physical Comfort class in addition to AG, were less

likely to meet the NOC Comfortable Death, which suggests to us that comfort is an important component of a patient death experience. Moreover, because there is a spiritual component to the AG experience, it is important for nurses to understand that spiritual suffering can exacerbate physical pain[35] and that physical pain can exacerbate spiritual suffering.[36] Solely relying on treating the physical pain may limit a nurse's ability to assist with the spiritual aspect of pain and anticipatory grief, thus diminishing the expected outcome of a comfortable death because spiritual suffering continues. Future research should focus on helping nurses, especially those working in hospitals, to distinguish between physical pain and spiritual suffering as separate constructs related to AG so that they identify and use appropriate interventions to achieve a respectful, comfortable death.

Family Coping, Spiritual Health, and Comfortable Death were the most frequent NOCs documented in our sample, which suggests that nurses consider these outcomes important components of AG. Though none of our findings were significantly associated with age, in the youngest age group, patients 18-49, slightly over 30% met the NOC Family Coping, 50% met the NOC Spiritual Health, and less than 30% met the NOC Comfortable Death. Unfortunately, the small number of younger patients in our sample restricted our ability to compare these concerning findings to those of previous studies in which there was a higher incidence of anticipatory grief in younger patients. Across all age groups with these outcomes, no age group met an outcome more than 58% of the time. Furthermore, the majority of patients died in the hospital (~53%) or were discharged to hospice (~17%), and of patients with an AG diagnosis, significantly more died in the hospital than all other end-of-life patients. What this demonstrates is that hospital nurses are recognizing AG as a problem among hospitalized end-of-life patients, but the expected outcomes were not met in majority of the episodes. It is unknown if the expected outcomes were realistic or if the interventions were ineffective. There is a strong indication for further research into the accuracy of expected outcomes and nursing interventions that may address anticipatory grief in hospitalized end-of-life patients.

Nursing experience may play a role in end-of-life patients with AG meeting a comfortable death outcome. Though not statistically significant, inexperienced nurses documented that patients met the comfortable death outcome more frequently than did the experienced nurses. This finding may be influenced by our small sample of inexperienced nurses or our definition of inexperience based on previous literature.[31,32] The idea that nurse experience could influence patient comfort is interesting and deserves further attention with adequate control of potential confounders including the unit where the nurse works. The HANDS software program provides an approach for nurses to document AG as a nursing problem and if it is used in practice settings, future research could emerge from evidence-based practice and then be used to guide practice changes to improve patient outcomes related to AG. Previous research clearly shows it is feasible to implement HANDS in diverse hospitals using a standardized training protocol.[7]

Although our dataset lacked sufficient gender information for examination of outcomes by gender, multiple studies have contradictory findings on the relationship between gender and anticipatory grief. Benfield et al. reported that a mother's anticipatory grief is significantly greater than a father's.[13] In direct contradiction to this, Rando et al., Al-Gamal et al., and

Valizadeh et al., found no significant differences between mothers' and fathers' experience of anticipatory grief.[12,20,22] Though mothers and fathers do not experience grief differently, according to Valizadeh et al., they do express it differently.[22] In non-parent roles, Mystakidou et al. and Chapman et al. reported that women experienced greater anticipatory grief than men,[18,24] whereas Carey et al. reported that anticipatory grief was more important to after-death adjustment for widows over widowers.[17] However, Mystakidou et al. found no differences in the anticipatory grief experience between women and men.[19] These discrepancies highlight the need for further research that explores AG with regards to gender. More research is also needed to further delineate between the existence and expression of AG, which could account for the opposing findings in relation to gender. Clearly, future research with HANDS should require gender as a required field for all patients and nurses.

One limitation in our data set is our inability to determine which defining attributes of anticipatory grief led the nurse to diagnose the patient with AG because the HANDS system does not collect that information. Because AG is a diagnosis that can also be applied to family members and caregivers, it is important to clearly document when AG applies to the patient, the family, or both. This clarity also helps the nurses caring for a patient and family to assign, perform, and evaluate the impact of interventions on outcomes relative to the target of care. In addition, such clearly documented information not only supports tailoring the interventions to the appropriate targets but also provides data that can be used to learn more about how AG specifically affects patients and families. We were unable to locate studies that documented interventions to alleviate AG among patients or caregivers. In our sample, the most frequently reported interventions (Table 3) that were documented on patients with AG included active listening, family integrity promotion, emotional support, spiritual support, caregiver support, and dying care, suggesting that a holistic, multi-disciplinary approach could be therapeutic and that interventions that have been found to be effective for the bereaved should be considered for patients and caregivers experiencing anticipatory grief.

Furthermore, hospital nurses may need to borrow interventions from their hospice counterparts, interventions such as life review and/or life compilation. Given that family coping was the most frequently cited outcome in our study that was associated with AG, nurses may also need to focus their attention on family care in hospitalized end-of-life patients. One such mechanism for nurses could be Dignity Therapy, a novel approach to helping patients deal with the experience of existential and spiritual suffering at the end of life.[37] Dignity therapy, a psychological intervention developed by Dr. Harvey Chochinov, was designed specifically to address the psychological, existential, and spiritual challenges that patients and their families face as death approaches.[37] Because interventions that address the physical, emotional, and spiritual needs of patients and caregivers can be time-consuming in a hospital setting, further research is needed to determine if this type of intervention in this setting helps patients meet expected outcomes and/or if a multi-disciplinary approach (e.g., nurses, chaplains, social workers) could be both efficient and effective, especially considering the shortened LOS in this population. Data from the HANDS database could be utilized to capture this relationship.

AG was a common diagnosis among the sample of patients who either died during the hospitalization or were discharged to hospice care, which could mean that this NANDA-I diagnosis is an important indicator of the patient's health status. In a recent analysis of plan of care data at the shift-level, researchers discovered that AG was one of several infomarkers that served as an indicator that the goals of care were consistent with palliative goals for patients who died.[38] This finding shows the importance of the AG diagnosis for patient populations who are hospice and palliative care appropriate and could be an early-referral indicator.

In summary, AG was not only a frequently noted diagnosis among hospitalized end-of-life patients, but its expected outcome rating was not met for a substantial portion of this population. In particular, failure to meet the NOC Comfortable Death carries strong implications for practice, research, and education. The HANDS database provides hospital nurses with a validated method to document care plans and provides a method for measuring whether chosen interventions lead to achieving the expected outcome. Future studies with the HANDS database in the practice setting could improve nursing care plan documentation for end-of-life patients by helping identify specific end-of-life needs and assisting in the determination of AG specific interventions to improve patient outcomes during the death and dying experience. Research studies also can be developed from these data that focus on improving the death experience and reducing hospital deaths. Because spiritual suffering and physical pain are closely related, it is important to teach hospital nurses how to distinguish between the two and use nursing interventions to meet the particular needs of their end-of-life patients.

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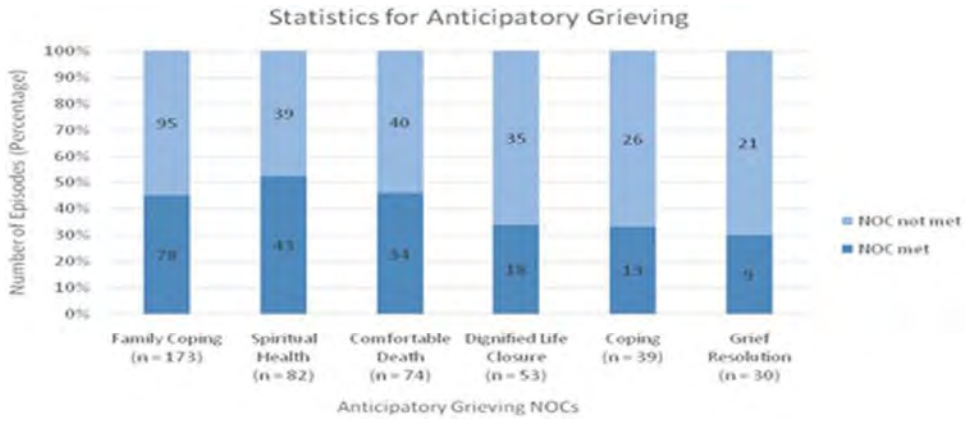
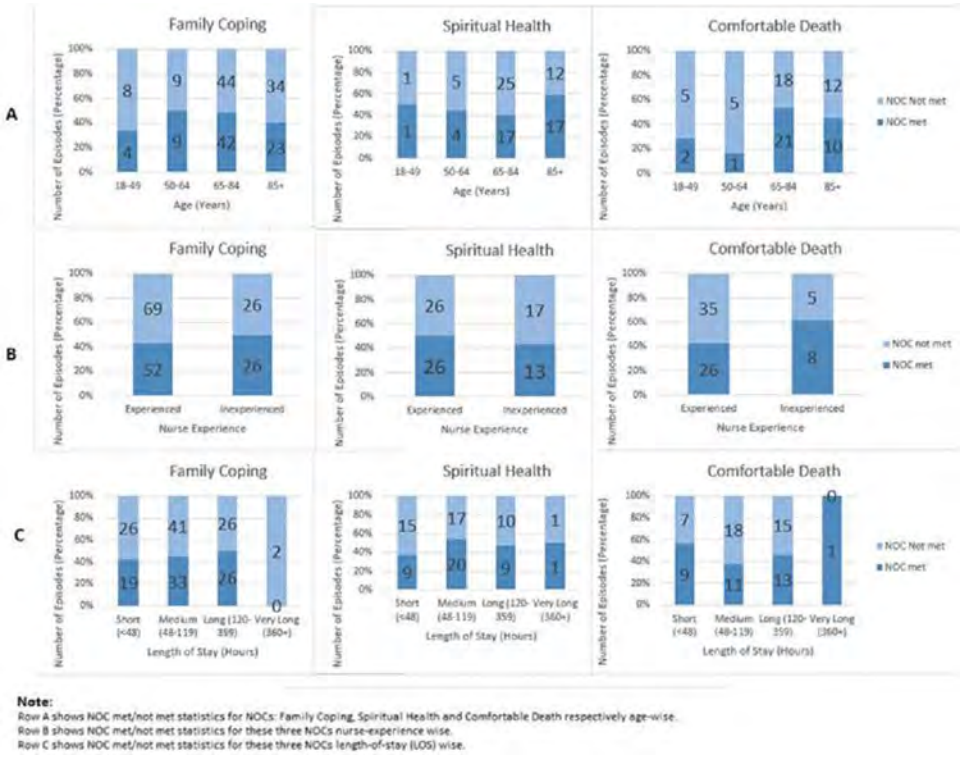


Figure 1.
Percentage of NOC met for Anticipatory Grieving related NOCs © 2014 HANDS Team



Note:
Row A shows NOC met/not met statistics for NOCs: Family Coping, Spiritual Health and Comfortable Death respectively age-wise.
Row B shows NOC met/not met statistics for these three NOCs nurse-experience wise.
Row C shows NOC met/not met statistics for these three NOCs length-of-stay (LOS) wise.

Figure 2.

NOC met/not met statistics for top three NOCs by patient age (A), nurse experience (B), and patient length of stay (C). © 2014 HANDS Team

Key: NOC = Nursing Outcome Classification

Table 1
NANDA-I Anticipatory Grieving Diagnosis

ANTICIPATORY GRIEVING
Definition: Intellectual and emotional responses and behaviors by which individuals, families, and communities work through the process of modifying self-concept based on the perception of potential loss.
Defining Characteristics:
Patient and family members express feelings reflecting a sense of loss
Patient and family members begin to manifest signs of grief
Denial of potential loss; Sorrow; Crying; Guilt; Anger or hostility; Bargaining; Depression
Acceptance; Changes in eating habits; Alteration in activity level; Altered libido
Altered communication patterns; Fear; Hopelessness; Distortion of reality
Related Factors:
Perceived potential loss of any sort
Perceived potential loss of physio-psychosocial well-being
Perceived potential loss of personal possessions

Source: NANDA International, Inc. 2014; http://www.nanda.org/about-nanda-international.html.

Table 2

The Clinical Specialty of the Units Studied by Type of Hospital © 2014 HANDS Team

Hospital	Unit	EOL Patients (N = 1453)	Patients with Anticipatory Grieving (N = 249)
LCH1: Large Community Hospital	General Medical	173 (12%)	58 (23%)
	Medical ICU	148 (10%)	23 (9%)
	Gerontology	472 (33%)	2 (1%)
UH: University Hospital	Cardiac Surgical	46 (3%)	7 (3%)
	Neuro Surgical	87 (6%)	34 (14%)
	Cardiac ICU	153 (11%)	0 (0%)
LCH2: Large Community Hospital	Medical Gerontology	108 (7%)	45 (18%)
	General Medical	144 (10%)	43 (17%)
SCH: Small Community Hospital	Medical Surgical	122 (8%)	37 (15%)

Table 3

List of NOC Outcomes and Interventions applied on patients with Anticipatory Grieving diagnosis

NOC Label Name	Interventions Used	Number of Episodes
Family Coping	Active Listening	127
	Family Integrity Promotion	117
	Caregiver Support	43
	FamilyInvolvement Promotion	39
Spiritual Health	Emotional Support	82
	Spiritual Support	82
Comfortable Death	Dying Care	43
	Emotional Support	43
	Family Involvement Promotion	35
	Caregiver Support	34
	Coping Enhancement	33
	Medication Administration	30

Table 4
List of NANDAs in domains and classes for NOC: Comfortable Death

NANDA Domain	NANDA Class	NANDA Names	Number of Episodes
Activity/Rest	**Activity/ Exercise**	Impaired Physical Mobility	29
	Cardiovascular/Pulmonary Responses	Activity Intolerance	18
		Decreased Cardiac Output	7
		Impaired Spontaneous Ventilation	1
		Ineffective Tissue Perfusion (Renal, Cerebral, Cardiopulmonary, Gastrointestinal, Peripheral)	13
	Sleep/Rest	Sleep Deprivation	1
Comfort	**Physical Comfort**	Acute Pain	33
		Chronic Pain	7
Coping/Stress Tolerance	**Coping Responses**	Anticipatory Grieving	74
		Anxiety	1
		Death Anxiety	3
		Ineffective Coping	11
Elimination	Urinary System	Functional Urinary Incontinence	1
		Impaired Urinary Elimination	3
	Pulmonary System	Impaired Gas Exchange	36
	Gastrointestinal System	Bowel Inconsistence	1
Growth/ Development	Growth	Adult Failure To Thrive	2
Health Promotion	Health Management	Ineffective Health Maintenance	1
		Ineffective Therapeutic Regimen Management	3
Life Principles	Value/Beliefs/Action Congruence	Spiritual Distress	7
Nutrition	**Hydration**	Deficient Fluid Volume	13
		Excess Fluid Volume	4
	Ingestion	Imbalanced Nutrition: Less Than Body Requirements	10
		Impaired Swallowing	1
Perception/ Cognition	Attention	Unilateral Neglect	2
	Cognition	Acute Confusion	8
		Chronic Confusion	2
		Deficient Knowledge	16
	Communication	Impaired Verbal Communication	6
	Sensation/ Perception	Disturbed Sensory Perception (Visual, Auditory, Kinesthetic, Gustatory, Tactile, Olfactory)	3
Safety/ Protection	**Infection**	Risk For Infection	23
	Physical Injury	Impaired Skin Integrity	11
		Ineffective Airway Clearance	2

NANDA Domain	NANDA Class	NANDA Names	Number of Episodes
		Ineffective Protection	4
		Risk For Aspiration	16
		Risk For Falls	15
		Risk For Impaired Skin Integrity	6
		Risk For Injury	1

* Bold domains and classes are the frequent ones considered for association mining

Table 5

List of NIC interventions for NOC: Comfortable Death and Anticipatory Grieving diagnosis

NIC Domain	NIC Class	NIC Labels	Number of Episodes
Behavioral	Behavior Therapy	Activity Therapy	4
		Behavior Management	2
		Mutual Goal Setting	1
		Smoking Cessation Assistance	5
		Substance Use Treatment: Alcohol Withdrawal	1
	Cognitive Therapy	Cognitive Stimulation	5
		Learning Readiness Enhancement	1
		Reality Orientation	5
	Communication Enhancement	Active Listening	15
		Communication Enhancement: Speech Deficit	2
	Coping Assistance	Anticipatory Guidance	2
		Coping Enhancement	33
		Decision-Making Support	6
		Dying Care	43
		Emotional Support	43
		Grief Work Facilitation	13
		Presence	13
		Religious Ritual Enhancement	28
		Security Enhancement	4
		Spiritual Support	8
		Touch	1
	Patient Education	Health Education	1
		Teaching: Disease Process	8
		Teaching: Individual	7
		Teaching: Prescribed Diet	6
		Teaching: Prescribed Medication	9
	Psychological Comfort Promotion	Anxiety Reduction	15
		Calming Technique	9
		Distraction	3
		Simple Relaxation Therapy	1
Family	**Life Span Care**	Caregiver Support	34
		Family Integrity Promotion	14
		Family Involvement Promotion	35
		Family Support	16
Health System	Health System Management	Bedside Laboratory Testing	1

NIC Domain	NIC Class	NIC Labels	Number of Episodes
		Laboratory Data Interpretation	6
	Health System Mediation	Case Management	1
		Discharge Planning	5
		Patient Rights Protection	1
		Visitation Facilitation	2
	Information Management	Documentation	6
Physiological: Basic	**Activity and Exercise Management**	Body Mechanics Promotion	3
		Energy Management	13
		Exercise Promotion	1
		Exercise Therapy: Ambulation	6
	Elimination Management	Diarrhea Management	5
		Tube Care: Urinary	1
		Urinary Catheterization	2
		Urinary Incontinence Care	5
	Immobility Management	Bed Rest Care	17
		Positioning	13
	Nutrition Support	Enteral Tube Feeding	14
		Feeding	1
		Gastrointestinal Intubation	1
		Nutrition Management	8
		Nutrition Therapy	1
		Nutritional Monitoring	8
		Swallowing Therapy	3
	Physical Comfort Promotion	Environmental Management: Comfort	1
		Pain Management	22
		Therapeutic Touch	1
	Self-Care Facilitation	Bathing	6
		Oral Health Maintenance	15
		Perineal Care	1
		Self-Care Assistance	12
		Self-Care Assistance: Toileting	2
		Sleep Enhancement	2
Physiological: Complex	**Drug Management**	Analgesic Administration	20
		Medication Administration	30
		Medication Administration: Inhalation	4
		Medication Administration: Intravenous (IV)	5
		Medication Administration: Oral	3
		Medication Management	17
		Sedation Management	13

NIC Domain	NIC Class	NIC Labels	Number of Episodes
	Electrolyte and Acid-Base Management	Acid-Base Management	20
		Acid-Base Management: Metabolic Acidosis	1
		Electrolyte Management	11
		Electrolyte Monitoring	3
		Fluid/Electrolyte Management	8
		Hemodialysis Therapy	3
		Hyperglycemia Management	17
	Neurological Management	Cerebral Edema Management	1
		Cerebral Perfusion Promotion	1
		Neurologic Monitoring	1
		Seizure Management	13
		Unilateral Neglect Management	1
	Respiratory Management	Airway Management	10
		Airway Suctioning	16
		Aspiration Precautions	2
		Cough Enhancement	6
		Mechanical Ventilation	14
		Mechanical Ventilatory Weaning	15
		Oxygen Therapy	21
		Respiratory Monitoring	22
		Ventilation Assistance	2
	Skin/Wound Management	Ostomy Care	1
		Pressure Management	3
		Pressure Ulcer Care	7
		Pressure Ulcer Prevention	5
		Skin Surveillance	11
		Wound Care	7
	Thermoregulation	Fever Treatment	8
		Hypothermia Treatment	1
		Temperature Regulation	1
	Tissue Perfusion Management	Bleeding Precautions	1
		Bleeding Reduction: Antepartum Uterus	15
		Blood Products Administration	3
		Cardiac Care	3
		Cardiac Care: Acute	2
		Dysrhythmia Management	2
		Embolus Care: Peripheral	1
		Embolus Precautions	15
		Fluid Management	11

NIC Domain	NIC Class	NIC Labels	Number of Episodes
		Fluid Monitoring	11
		Fluid Resuscitation	4
		Hemodynamic Regulation	1
		Hypovolemia Management	1
		Intravenous (IV) Therapy	4
Safety	**Risk Management**	Area Restriction	2
		Delusion Management	1
		Dementia Management	1
		Environmental Management	18
		Environmental Management: Safety	6
		Fall Prevention	20
		Immunization/Vaccination Management	3
		Infection Control	11
		Infection Protection	1
		Physical Restraint	2
		Risk Identification	4
		Surveillance	9
		Surveillance: Safety	15
		Vital Signs Monitoring	14

* Bold domains and classes are the frequent ones considered for association mining