

Living in uncertainty after a pituitary macroadenoma: a case study

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ABSTRACT

Introduction: The Theory of Uncertainty in Illness is a middle-range nursing theory that explains the processes faced by people with chronic illnesses, in order to achieve adaptation. This theory describes antecedents of uncertainty, appraisal mechanisms, and coping strategies to adapt to new conditions. **Objective:** Demonstrate the integration of the nursing process, standardized language, and the Theory of Uncertainty in Illness involved in the care of a person with physical and psychosocial complications after a pituitary macroadenoma. **Methodology:** Data was collected through interviews with the patient, physical examination, and medical record. Mishel's Theory of Uncertainty in Illness, standardized languages to describe diagnosis, interventions, results and scientific evidence were used to develop the care plan. **Presentation of the case:** The Theory of Uncertainty allowed selecting the main diagnosis, that is, ineffective coping related to uncertainty, which was addressed with the following NICs, improve coping and learning, illness process; the results measured were NOC, stress level and knowledge, chronic illness management. The effectiveness of this approach was reflected in the improvement of the indicators. **Conclusions:** The identification of a theory that can explain findings and guide the interventions enhances the quality of the nursing care. This integration facilitates a personalized and evidence-based nursing care.

Keywords: Uncertainty; chronic illness; nursing process (DeCS, BIREME).

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INTRODUCTION

The Theory of Uncertainty in Illness explains how people address uncertainty, which is defined as the inability to determine the meaning of illness-related events^(1,2). Uncertainty, understood more as a process than as a static state is preceded by the stimuli framework, cognitive capacities, and health care providers⁽¹⁾. Once uncertainty appears, it goes through an appraisal process by means of cognitive mechanisms of inference and illusion, with the likely outcome, from the appraisal, of danger and opportunity⁽¹⁾. In case the person experiences the uncertainty for long periods of time and his antecedents are sufficiently consistent to promote change, the appraisal changes to a new life perspective ruled by a probabilistic thinking⁽²⁾. Therefore, this theory serves as guide to understand health and illness processes and thus provide adequate nursing care to help people to manage uncertainty.

In this case, Mr. R. was diagnosed with a pituitary macroadenoma, unexpectedly. This illness consists of a generally benign tumor in the pituitary gland, either being of secretory nature or not, whose first-line treatment consists of a minimally invasive trans-sphenoidal endonasal resection⁽³⁾. An incidence of 12 to 42 cases per million of inhabitants per year is estimated, and after resection 52.3% of the people report at least one pituitary deficiency, being the most common deficiencies related to the hypothalamo-pituitary-peripheral gland axis⁽⁴⁾. In line with this, as result of the adenoma and the surgical resection Mr. R. developed multiple chronic conditions that required continuous treatment and adaptation. It is in this latter process, the post-surgical period, where a bigger impact in the life of the person with a pituitary tumor usually occurs, with the peculiarity that the impact is due not only to physical consequences of the illness and treatment but also due to the impact on psychological and social domains⁽⁵⁾. Furthermore, the origin of the low quality of life of these patients⁽⁶⁾ resides in the symptoms of the post-surgical period (vision problems, sexual dysfunction, and hormonal changes, among others). Consistent with the above, Mr. R. showed some difficulties to understand and manage his new social and health situation, thus, experiencing uncertainty. Therefore, the objective of this article is to demonstrate the integration of the nursing process, standardized language, and the Theory of Uncertainty in Illness in a care plan to support the individual and his physical and psychosocial complications.

METHODOLOGY

The nursing process was used for the care management of Mr. R., which is a systematic and scientific process used to identify and solve health problems as well as to acknowledge protective factors involved, and thus enhance wellbeing. The nursing process is comprised by 5 stages, namely: appraisal, diagnosis, planning, execution, and evaluation⁽⁷⁾. The targeting appraisal phase was guided by the Marjory

Gordon's functional patterns⁽⁸⁾. Once the answers and human needs were found, a care plan was prepared using the NANDA-International Taxonomy-II⁽⁹⁾ for diagnosis, NOC⁽¹⁰⁾ for the establishment of results and indicators, and NIC⁽¹¹⁾ to select the most appropriate interventions and actions based on the case and context. The process took place over the course of three days in the same week, which corresponded to the clinical practice of the course named EE0421 Module 5: Intervención de Enfermería con la Adulthood en Procesos Mórbidos⁽¹¹⁾ (Nursing Intervention with Adulthood in Morbid Processes). During the whole process the Theory of Uncertainty in Illness was used.

PRESENTATION OF THE CASE

Appraisal

Mr. R. is 44 years old, did not finish his secondary education, and worked as bus driver. He was unemployed at the moment of his illness.

Below the findings of the appraisal through the revision of the clinical report, physical examination, and nursing history (interview) are detailed, which are presented according to Gordon's Functional Patterns⁽⁸⁾.

Health Perception-Health Management Pattern: In 2015, Mr. R. suffered a bilateral optic neuritis caused by a pituitary macroadenoma. The treatment for this condition was a transsphenoidal resection. As a result of the procedure, the optical nerve was irremediably damaged and the hypothalamo-pituitary axis was interrupted. Therefore, the patient developed secondary hypothyroidism, hypogonadism, anosmia, and blindness. Mr. R. was admitted at the neuroscience unit due to bacterial meningitis, caused by a defect in the sphenoid bone and he also had hyperchromic anemia. He was under pharmacological treatment: 1) Enalapril 20 mg by mouth each day, 2) Levothyroxine 1 tablet by mouth each day, 3) Fludrocortisone 1 tablet by mouth each day, 4) Cefotaxime 2g intravenous each 8 hours, 5) Vancomycin 1g intravenous each 8 hours. Lab exams had the following results:

- Erythrocytes: 3,6 (4,5-6,0 x10⁶)
- Hemoglobin: 10,1 (mayor a 15 g/l)
- Hematocritos: 28 (38-50%)
- CHUM: 35,6 (26-34 UG/dl)
- T3: 1,83 (2,3-4,4 mg/dl)
- T4: 4,75 (0,7-1,8 mg/dl)
- Prolactin: 1,7 (2,0-8,0 mg/dl)
- Cortisol: 4,1 (6,0-23,0 mg/dl)
- Testosterone: less than 20 (280-1100 mg/dl)
- Creatinina: 0,9 (0,6-1,2 mg/dl)
- Oxaloacetic transaminase: 37 (13-39 U/L)
- Pyruvic transaminase: 40 (7-52 U/L)

Prior to the macroadenoma Mr. R. stated he occasionally drank alcohol, but when the diagnosis was

made he stopped drinking it. As past medical history he has had high blood pressure and does not have surgical antecedents or allergies. His vital signs were identified as stable, namely, blood pressure: 109/73 mmHg; heart rate: 96 beats per minute; breathing rate: 16 breaths per minute; and temperature: 36,5°C. He was expecting discharge when nursing care was provided.

Nutritional-Metabolic Pattern

Weight and size were not available at the time of the appraisal, nor the unit had the elements to take these measures. Mr. R. stated that he had a diet based on cereals, chicken, beef, or pork; with little fish and high amounts of vegetables (mainly eaten boiled or in soups). He mentioned he drinks little water during the day, although he was not able to state the amount accurately. Low hemoglobin and hematocrit and an increased concentration of mean corpuscular hemoglobin indicated the status of hyperchromic anemia secondary to the infectious process observed in the medical record.

Elimination Pattern

Mr. R. stated he has had a regular pattern of bowel movements, without difficulty, defecating at least once a day. He urinates frequently during the day, without difficulty, without being able to say the amount or characteristics of the urine accurately.

Activity-Exercise Pattern

Mr. R. had difficulties performing the basic activities of daily life such as eating and walking, and instrumental activities of daily life as well such as taking his medication. Unsteady gait and use of biomechanical support (cane) was observed. He said that due to the recent diagnosis he had to stop his physical activity, once beneficial, mainly due to lack of adjustment to his new condition. Despite the hyperchromic anemia he has, this syndrome does not have evident effects on his tolerance to physical activity. During the physical examination an apex beat at the level of the fifth intercostal space and the mid clavicular line was observed, which is relevant in the light of his long-standing high blood pressure, since it suggests the absence of a cardiomegaly. The cardiopulmonary auscultation revealed no alterations.

Sleep-Rest Pattern

Mr. R. said that he can sleep easily, enjoying a restful night's sleep, and estimating around 7 hours of sleep in average.

Cognitive-Perceptual Pattern

Mr. R. mentioned his "incapacity" to get involved with his self-care due to lack of knowledge about his chronic conditions resulting from his prior clinical condition, complications, and

treatment; specifically, he referred to gaps of information regarding blindness and hypothyroidism. These findings are compared with those obtained during the physical examination, namely, presence of mydriatic pupils without reaction to light and the incapacity to discriminate odors confirm the lesion of the olfactory, optic, and oculomotor nerves due to the optic neuritis, pressure of the macroadenoma over the optic chiasm, and transsphenoidal surgery, which, in turn, accounts for blindness and anosmia.

Self-Perception/Self-Concept Pattern

Mr. R. expressed feelings of anxiety and fear. However, since these did not impact his self-perception, they are described in the Role-Relationship and Coping-Tolerance to Stress patterns.

Role-Relationship Pattern

Mr. R. is married and has three children. He lives in a rented house with his wife and two of his children. He was doubtful when making decisions in his life, especially those related to his work; his former work as bus driver is no longer an option due to his current blindness condition. Unemployment aggravated his situation, since the only financial support of his house was his older son. Additionally, he emphasized his conflict with the role of provider through verbalization such as this: "I'm afraid not to be able to provide for my children". Moreover, since his wife was the main caregiver he felt anxious because he did not want to become entirely dependant on her. At the same time, he emphasized the support from his wife, friends, and community as his main support to face the unmanageable situation. His neighbors, whom he considers his friends, have been close to his illness process.

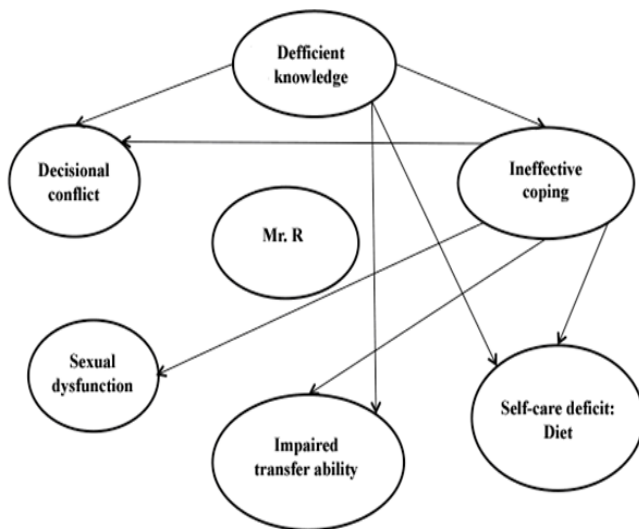
Sexuality-Reproductive Pattern

Mr. R. mentioned that he has problems in his sexual relations due to his failure to maintain an erection during intercourse. At the same time, signs of hypogonadism during the physical examination were observed, compared with the extremely low level of serum testosterone. Despite this situation, the participant declined to provide more information in this respect, and stated that he did not want this problem to be addressed.

Coping/Stress-Tolerance Pattern

Mr. R. reported difficulties in adapting to the new situation, specifically blindness and the large medical treatment. He mentioned that due to the fact that he is unemployed, "he is at home without doing anything" and that he is dedicated to learn how to adapt to his blindness. When he was asked about how he copes with the situation, he stressed two feelings, namely, fear and anxiety. He was frightened by the

Figure 1. Model AREA for Prioritizing Diagnosis.



Source: Own development.

large changes in his life and the future. Moreover, he felt nostalgic about the past and experienced high stress levels, thus, he avoided the situations that produced stress, anxiety, or nostalgia. Additionally, he mentioned that one of his main concerns was the financial limitation they have, since the only financial contribution comes from his older son. Therefore, a disability pension is under way.

Values-Belief Pattern

Although Mr. R. has been Catholic, he said that religion does not play a vital role in his life and he declared that he is not religiously observant.

Diagnosis

After the analysis of the appraisal data, human responses in the form of nursing diagnosis were determined. In order to provide personalized nursing care, standardized nursing languages from NANDA-I Taxonomy II⁽⁹⁾, the Nursing Outcomes Classification (NOC)¹⁰, and the Nursing Interventions Classification (NIC)⁽¹¹⁾ were used. Multiple diagnoses were considered (table 1), and the AREA Model (Figure 1) was used to ensure an adequate clinic reasoning and critical thinking in order to prioritize diagnosis⁽¹³⁾.

Ineffective coping related with uncertainty was selected as priority diagnosis, since uncertainty was valued as danger this is not allowing Mr. R. to develop effective coping strategies⁽¹⁾. Insufficient knowledge related to insufficient information was selected as secondary diagnosis since an adequate knowledge about the illnesses, treatments, and consequences can provide a cognitive scheme to process the situation and help the development of coping mechanisms⁽¹⁾.

These two diagnoses have a direct effect in the diagnosis, decisional conflict.

The other diagnosis related to activity/rest and sexuality were discarded, because if appropriate support for the development of coping strategies and information were provided Mr. R. could improve in his appraisal of stressors, select adequate answers, and use available resources⁽¹⁴⁾ efficiently such as family support and the health system.

Planning and Execution

In accordance with nursing diagnosis, the aforementioned taxonomic language to provide personalized care was used. The full plan of care is summarized in Table 1.

Regarding the primary diagnosis, Mr. R. accepted to select the Stress Level as the main outcome. Persons with high levels of uncertainty, especially in conditions were uncertainty is valued as danger, tend to have high levels of stress and anxiety⁽¹⁴⁾. In this case, Mr. R. valued uncertainty as danger and experienced high levels of stress and anxiety, which is in line with several studies^(15,16). Therefore, an intervention focused in reducing the stress levels as outcome is valid in this situation. Additionally, Knowledge, that is, management of the chronic illness, was selected as the outcome for the secondary diagnosis. Based on Mishel's theories, the objective was to provide structure in order to improve the stimuli framework and, indirectly, reduce the level of uncertainty⁽¹⁷⁾.

Stress was considered a primary sign of the uncertainty¹⁸ valued as danger, consequently, a NIC⁽¹¹⁾ that provided support to coping efforts in a long-term intervention was selected. Hence, improve coping was selected as intervention (table 1). This was chosen because it could be implemented in the hospital and in the community, allowing the continuity of the care between the hospital and primary healthcare facilities.

At the same time, lack of knowledge about the conditions, treatments, and their potential complications may even be contributing to the perception of uncertainty as danger. Hence, the intervention Teaching, that is, Illness Process was selected. It should be noted that as the diagnosis of deficient knowledge was selected as secondary, this intervention was also secondary, given that providing information before dealing with uncertainty may even be counterproductive with respect to the levels of stress and anxiety⁽¹⁹⁾.

Evaluation

As it can be observed in the healthcare plan (table 1), the level of stress observed one day after the intervention was low, given that Mr. R. mentioned that by expressing his feelings "he took out what he had inside". Moreover, all the indicators of knowledge reached the highest score since when asked specific questions about the content of the learning session, he demonstrated an adequate understanding of his

Table 1. Care Plan for Mr. R.

Diagnosis NANDA	NOC	NIC	Evaluation
<p>Inefficient coping related to uncertainty (00069)</p> <p>Defining characteristics</p> <p>Use of coping forms that prevent adaptative behavior</p> <p>Expresses incapacity for coping</p>	<p>Stress level (1212)</p> <p>Indicators</p> <p>1) Irritability,</p> <p>2) Depression,</p> <p>3) Anxiety</p>	<p>Improve coping (5230)</p> <p>Activities</p> <p>Encouragement of verbalization of feelings, perceptions, and fears; and stimulation of family engagement familiar.</p> <p>Emotional intelligence and the expression of emotions facilitate the adaptation behavior when dealing with stress; thus, Mr. R. had time to talk about his feelings and thoughts about his conditions; he was listened to, and the importance of acknowledging emotion and its expression was emphasized.</p> <p>The company of his wife was encouraged in this intervention, so Mr. R. could strengthen his relation with her and improve his communication skills.</p>	<p>All NOC indicators (irritability, depression, and anxiety) improved from moderate (3) to mild (4).</p>
<p>Deficient knowledge related to insufficient information (00126)</p> <p>Defining characteristics</p> <p>Insufficient information.</p>	<p>Knowledge: Management of chronic illness (1747)</p> <p>Indicators</p> <p>1) Ordinary course of the illness process,</p> <p>2) Strategies to prevent complications,</p> <p>3) Therapeutic effects of medication, and</p> <p>4) Adverse effects of medication.</p>	<p>Teaching: Nursing process (5602)</p> <p>Activities</p> <p>A learning session was implemented as part of the activities; before the session, knowledge about his health-illness conditions were explored and acknowledged.</p> <p>Later, we spoke with Mr. R. regarding hypothyroidism and blindness (diagnosis, physiopathology, signs, and symptoms, and complications included), the medical treatment for all his conditions (side effect and size of the pill included, so Mr. R. could differentiate each medication), basic information about mobility with help equipment (cane), and the importance of constant examinations to be made at the primary healthcare facility.</p>	<p>NOC indicators improved as follows:</p> <p>Ordinary course of the illness process improved from substantial knowledge (4) to extensive knowledge (5)</p> <p>Strategies to prevent complications improved from moderate knowledge (3) to extensive knowledge (5)</p> <p>Therapeutic effects of the medication and adverse effects of the medication improved from limited knowledge (2) to extensive knowledge (5).</p>

Source: Own development based on NANDA-I Taxonomy II, Nursing Intervention Classification (NIC) and Nursing Outcome Classification (NOC).

conditions and treatments. In other words, the intervention was effective since it improved the knowledge about his chronic conditions. However, it is noteworthy that once he is discharged, he will require more learning support, and it will be necessary to provide nursing care that includes not only the patient but also his wife, subject matter of the latest research related to uncertainty⁽²⁰⁾. Understand his wife not only as part of his family but also as a person who will eventually experience uncertainty, as a fruit of her care actions towards her husband⁽²¹⁾, would indirectly allow his support through the encouragement of social support.

DISCUSSION

During the appraisal phase, many sources of uncertainty were identified. According to the theory, an antecedent of uncertainty is the stimuli framework comprised by three dimensions, namely, symptoms pattern, familiarity with the event, and consistency of the event⁽¹⁾. As regards Mr. R., all chronic conditions that he experienced has consistency over time and cannot be cured, just be treated over time, which provided a pattern of symptoms. Even though these conditions had an important impact on daily life activities, reducing self-care actions and increasing the dependence on a caregiver, the lack of information about the chronic conditions resulting from his original illness and treatment challenged the familiarity and consistency of the event. In addition to the clinical condition as such, it is well-known fact that socio-demographic factors such as gender, education level, and socioeconomic situation have an impact on both the level of uncertainty and the manner in which this is experienced⁽²²⁾, which should be taken into account with a view to provide comprehensive care.

Theory also states that cognitive capacity and health care providers have an influence on the stimuli framework that directly or indirectly affect the evaluation of uncertainty⁽¹⁾. Even though Mr. R was cognitively undamaged, an overload of information regarding the critical conditions in which he was before has been observed, namely, health care providers have embarked on providing him huge quantities of information regarding the macroadenoma, meningitis, and the defect in the sphenoid bone, without addressing the chronic conditions he would experience later on. However, social support received from his family and community was a protective factor. Therefore, the illness experience of Mr. R. was interpreted as ambiguous, complex, unpredictable, and without information¹. The uncertainty felt by Mr. R was evaluated through inference as a danger, and his coping strategy as a response was the control of the effect, due to his constant avoidance of stressful situations. Consequently, nursing professionals would require focusing on the development or strengthening of emotional coping strategies to reach adaptation and have a new vision towards life, one that includes uncertainty in his life.

CONCLUSIONS

The nursing process requires a theoretical and/or conceptual framework to better understand human needs of the people and develop quality interventions based on evidence. The identification of a theory since the beginning of the nursing process helped to interpret, organize, and explain the appraisal findings, which guided toward the identification of main diagnosis (ineffective coping related to uncertainty and deficient knowledge along with insufficient information). Thus, through the use of coping strategies and teaching to improve results related to the stress level and knowledge regarding the management of the chronic illness, the person was helped to adapt to the uncertainty of his new health situation. In this case, the theory of uncertainty facilitated a more personalized care based on scientific evidence. Additionally, the standardized language was useful to close the gap between theory and practice, allowing at the same time the continuity of nursing care among the levels of care or the environments.

CONFLICT OF INTEREST

The authors declare they do not have any conflict of interest.

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